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OVERHEADS ARE NOT JUST A COST

Overheads are not just a cost

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Declaration by student

I, the undersigned, hereby confirm that the attached treatise is my own work and that any sources are adequately acknowledged in the text and listed in the bibliography.

Signature of acceptance and confirmation by student

Abstract

Title of treatise:	Overheads are not just a cost
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The predominant view by contractors is that overheads are mainly seen as harvesters of retained earnings and that their associated costs are often to blame for reduced profits (or loss.)

The research found that overheads apart from their associated costs are important strategically, play a vital role in the winning of tenders, help achieve the primary goal of the business which is to make profit, assist in creating a performance management culture and assist in owner caused delay claims.

The research strongly opposes the view by some contractors and establishes that overheads are more than just a cost for the construction company.

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Chapter 1: Introduction

1.1 Background

Contractors incur costs in the process involved in executing their construction projects. The costs incurred can be categorized into direct and indirect costs. Palmer (1995:243) states the word direct, when applied to construction cost, means cost which can be specifically identified with a construction job and/or with a unit of production within a job. An indirect cost is a cost which can be identified with jobs but not with specific job or units of production.

Palmer introduces a third cost that of overhead costs, which are those costs which cannot be identified with or charged to jobs or units of production unless some more or less arbitrary allocation basis is used. The above mentioned overhead cost is also a form of indirect cost.

For contractors it is normal to make a distinction between the two types of indirect costs namely;

1. Project or site overheads

Project or site overheads are those costs that can be directly associated with the project but that cannot be directly attributed to an activity, according to Wideman (2002).

2. Home, general and administrative or head office overheads

Head office overheads are those expenses for the general management and administration of the business unit, and which cannot be attributed to any specific business activity or project, but are still necessary for the business to function.

Carr (1988) presents another type of cost classification which contractors can use. Namely variable costs, which are costs that change in proportion to the change in volume or quantity, and secondly fixed costs, which are those costs that remain unchanged in total, despite wide fluctuations in volume or quantity.

The distinction made by construction environment professionals is subjective in that there is no standard classification of the costs that make up overheads. According to Peterson (2005:184), it is important to distinguish between these project overhead costs and general overhead costs in order to accurately determine the total costs involved in executing the project for the contractor. General overheads are those costs, such as general administration and support services, which cannot easily be associated with particular products or services and are difficult to allocate to the project for the contractor.

General overhead costs in construction projects tend to be seen as bad costs as they are not directly related to the projects, however some level of overheads is needed to run an organization and spending on overheads does not necessarily represent a poor use of resources.

Sometimes associated with what is billable to the project's owner under the construction contract with the owner, the difference between a project overhead and a general overhead may vary from project to project. For example, one contract may specifically allow the construction company to bill the cost of the project manager to the project, whereas another may specifically prohibit it and require that the project manager be paid out of profit and overhead mark-up which is the source of gross profit. The more costs that need to be paid out of the mark-up will result in the contractor making less profit and with a higher required mark-up to compensate for the additional costs will make the contractor less competitive when tendering on jobs,

Profit and general overhead come out of the gross profit. The significance of this is that the smaller the overhead costs, the greater the profit for the company.

To control these costs, a budget should be prepared for general overhead and general overhead cost should be controlled, just as one prepares budgets for and tracks direct and indirect construction costs for each project. The general overhead budget is a plan of the expenditures for the company that cannot be billed to a construction project. The preparation and use of a general overhead budget helps to control general overhead costs and thereby increase profits.

Overheads in a construction company play an important role in the budgeting, tendering and accounting processes. Overhead costs continue to run irrespective of whether the contractor manages them or not. If overhead costs are out of control the effect would be lower cash flow and could even resulting in a possible loss for the contractor. When a contractor is unable to make money and win jobs he will have to close his doors.

1.2 The main problem

For construction companies, head office overheads are viewed mainly from a cost cutting point of view. This is supported by Assaf *et al* (2000) whom states that “in an environment of intense competition, declining profit margins, and shrinking market shares, the only way to stay competitive is to control cost while maintaining quality products. Overheads constitute a good starting point for achieving cost reduction because they act as a silent harvester of retained earnings.”

The statement made by Assaf presents the fact that overheads are mainly viewed by contractors from a cost cutting point of view. This leads to the main problem that;

Overheads are not just a cost.

1.3 Sub-problems

Sub-problem 1

1.3.1 Are overheads strategic for construction companies?

Sub-problem 2

1.3.2 Can the management of overheads be used to measure performance of construction company directors?

Sub-problem 3

1.3.3 Does a single method for processing head office overhead claims in construction exist?

Sub-problem 4

1.3.4 Do the estimating principles in the process of budgeting, tendering and accounting of head office overhead overlap?

1.4 Hypothesis

Hypothesis 1

1.4.1 The sheer size of overheads in relation to the construction company's revenue makes overheads strategic.

Hypothesis 2

1.4.2 Overheads form part of the business strategy and should be used to manage performance of construction company directors.

Hypothesis 3

1.4.3 A single method in law does exist relating specifically to construction cases.

Hypothesis 4

1.4.4 The three elements fit into each other, therefore the estimating principles for head office overheads overlap.

1.5 Delimitations

The research evaluated overhead practice from a contractor's perspective. The main focus was on the head office overhead practice. The research did not aim to make any new findings but rather to investigate the different areas of overhead practice.

1.6 Importance of the study

When a contractor does not understand overheads from a holistic point of view he will be unable to successfully strategize, win tenders and make profit and therefore force his company to go under.

1.7 Research Methodology

1. Textbooks

Text books where used in order to get a better perspective on the theory of overhead practice.

2. Electronic media

Electronic media was used in order to gain a better understanding of the current practice in the industry.

The success of the research required the studying of the literature sourced in order to establish the linkages between the areas of overhead practice. No single study was found which presented the holistic linkages sought for in one article.

Chapter 2: Construction company strategy

Sub-problem 1

1.3.1 Are overheads strategic for construction companies?

Hypothesis 1

1.4.1 The sheer size of overheads in relation to the construction company's revenue makes overheads strategic.

2.1 Introduction

It is important to start off the research by looking at what defines a strategy in order to see if overheads can be categorised as being a part of the construction company's strategy and hence itself being strategic.

According to Wikipedia (2008) the definition of a strategy is follows,

"A Strategy is a long term plan of action designed to achieve a particular goal, most often winning. Strategy is differentiated from tactics or immediate actions with resources at hand by its nature of being extensively premeditated, and often practically rehearsed".

Wikipedia furthermore define strategic planning as the following,

“Strategic planning is an organization's process of defining its strategy, or direction, and making decisions on allocating its resources to pursue this strategy, including its capital and people.”

Homsey (2008) says that “the ultimate goal to be in business is to make profit.” If a construction company is not being competitive in the market it will more than likely not be making profit and hence would have to close its doors. It is essential for the organization to be competitive in order for the company to survive.

To only be competitive is not good enough in the modern business world. Companies’ need to structure themselves in a way that gives them an advantage over others in the market, this is commonly referred to as competitive advantage.

Porter (1998) describes this phenomenon in greater detail by stating that “competitive advantage is a position a firm occupies against its competitors. The two forms of competitive advantage are

1. Cost advantage

Cost advantage occurs when a firm delivers the same services as its competitors but at a lower cost

2. Differentiation advantage

Differentiation advantage occurs when a firm delivers greater services for the same price of its competitors.

They are collectively known as positional advantages because they denote the firm's position in its industry as a leader in either superior services or cost.” The statement made by Porter brings out the fact that one of the forms of competitive advantage is to provide a cost advantage over other competitors for the same service to clients. Contractors provide the above mentioned advantage to clients by submitting tenders at lower prices than the other contractors bidding on the same jobs.

Porter (1998) goes on further to state that “competitive advantage is created capabilities and resources to achieve a lower cost structure or a differentiated product. A firm positions itself in the industry through its choice of low cost or differentiation. This decision is central to a firm’s competitive strategy.” The key point made by Porter is that the choice of being competitive is an important strategy for the business and hence the element of cost can be described as an important sub-element for the purposes of strategic success.

2.2 Competitive advantage based on cost

Contracts are not necessarily won on direct costs. The reason for this is that most contractors are for example aware of the average cost per meter cube of say concrete, the rate per meter square of brickwork, plaster or paint and so forth. Many years of estimating experience in the tendering process have taught them this. Therefore if one had to compare prices of tenders purely on direct costs, it would be evident that the variances between tenders would be extremely marginal as a result. This leaves the second part of the tender and is the area where most contracts are won, namely in the markup added to the direct costs of the project.

Markup consists predominantly of a percentage for profit and a percentage for head office overhead recovery. The allowable profit percentage to be added is mainly restricted to the current market conditions, which therefore leaves the head office overhead percentage as one of the most important elements by which tenders are won and how contractors’ can achieve competitive cost advantage over other contractors in the market. This idea is also supported by Robbins (2007) whom describes overheads as an essential part of the business strategy.

Newman (2007) presents the fact that “construction is a risky business, financially as well as physically. Contractors continuously face notoriously thin margins, volatile revenues, and unpredictable jobsite conditions. For all these reasons, it is critical to keep costs under control.” One of the keys to success in the construction industry according to Newman is to understand and manage your indirect overhead costs. Inattention to overhead can get you into trouble in two ways. First, without getting a handle on indirect costs and developing a reasonable method of allocating them to projects, it's difficult to measure the profitability of jobs or to prepare accurate bids. Second, unless you continually monitor your overhead costs, they can quickly spiral out of control, wiping out your profits in the process. A company cannot survive if it cannot make profit and therefore the company must ensure that it controls its’ overhead costs.

Newman (2007) states that by allocating costs to the jobs or activities that drive those costs; you can develop more accurate bids and do a better job of tracking profitability while jobs are in progress rather than after the fact. Including these types of costs in the bidding process should not be viewed as an extra burden in the estimate process. Instead, including these costs will result in a more realistic estimate as well as more accurate information about the relative profitability of each of your jobs.

To properly allocate overheads or indirect cost especially in construction is an extremely difficult process and is an area proving to provide contractors with frequent difficulties. This however does not relieve the importance of properly pricing activities in order to win tenders which is a construction company’s main line of business. If a contractor cannot price jobs properly, it will probably be evident that he will not be certain of his profit and will fail to provide a competitive advantage to his prospective clients.

Yantis (1996) supports Newman’s idea to specifically allocate costs to activities that drive those costs. Yantis stated that during their region's last downturn, volume decreased while their overhead remained constant, and they didn't know how to lower

it. After careful analysis Yantis figured out that not every dollar of overhead cost is the same. Every expenditure for labour, for example, leads to quantifiable, additional expenditures for items such as payroll taxes and benefits. Yantis states that now they analyze the related overhead costs for labour and other items, like materials with every job we bid on, to help them figure out where and when to lower overhead. Yantis also distinguishes between the company's head office overhead and the more variable costs of performing each job. She knows that based on last year's results that 33% of their labour costs and 10% of material costs are main-office overhead. That helps them figure out our minimum profit margins on any job. Overhead to their company is so important that if they cannot cover main-office overhead on a project, they pass. The important point made by Yantis is that every expenditure leads to other quantifiable expenditures. The construction industry is often the main culprit for using the excuse of too difficult as a reason not to specifically work out these other quantifiable costs and tend to use percentages to compensate for above deficiencies. The cost might exceed the benefit of working out these costs however it certainly according to Yantis does not mean that they are not able of being quantified. This is crucial for a contractor if he wants to accurately prepare bids for tender and to win jobs.

Hayes *et al.* (1986) and Marshall (1988) support the efforts of Yantis and states that “substantial literature is evidence that it is commonly accepted that construction is inherently risky. However, not all construction is equally uncertain and managers of individual projects need to consider the actual level of uncertainty they may expect to face.” Contractors should define what is uncertain and what is not uncertain to them. This is important in order to manage risks and to strategize successfully.

Ellis Jones *et al* (1998) states that strategy is about choice and which affects outcomes. Organizations can often survive; indeed do well, for periods of time in conditions of relative stability, low environmental turbulence and little competition for

resources. According to Ellis Jones et al at current, virtually none of these conditions prevail in the modern world for great lengths of time for any organization or sector, public or private. Hence, the rationale for strategic management. Ellis Jones *et al* highlights the need for strategic management in order to survive and be competitive. This ties up directly with the need to properly manage resources of the organization which to a large degree consist of the expenditures used to run the business in that of overheads.

The second important fact stated by Ellis Jones *et al* is that it is about choice. March and Simon (1958) took management theory to new levels of rigour in exploring the ways managers make decisions. They described management as a decision system in which decisions are bounded by possible answers which managers draw out of the structured information in their minds, the consequences they perceive may follow, and their current objectives.

March and Simon's work showed that bounded rationality describes the way managers work because problems in organizations involve many different factors and are beset with conflicts between the objectives and points of view of different groups. As an inevitable consequence it is not practical to look for optimum answers. As March and Simon make clear an optimum answer can be found only if there is a clear set of criteria against which all alternatives can be judged and the selected answer is preferred by all these criteria to all other possible answers. Managers rarely have time for this and so they tend to accept the first satisfactory answer that occurs to them.

March and Simon called this satisfying or finding a satisfactory answer. This requires a set of criteria which describe a minimally satisfactory answer and then the selected answer is the first one the decision maker thinks of that meets the minimum criteria.

March and Simon showed that most decision making in practice is satisfying not optimising. This requires managers to rely on experienced judgement, to use trial and

error and to recognise that there is always scope for improving their organization's performance.

Experienced managers often recognise when they make a decision that there may well be a better answer but it would be too expensive and take too long to continue searching. The research presented by March and Simon does shed some important light especially in the way professionals make decisions in the construction industry which is essentially subject to their right of choice. This shows that decisions on overheads for strategic purposes often relies on choice and subjective opinions.

Allen *et al* (2004) surveyed 156 Chief Financial Officers from around the world to understand current trends and best practices in the management of General and Administrative functions, also known as overheads. According to Allen *et al* the study concluded that reducing overhead costs was still the top priority for chief financial officers. The study found an intense and sustained focus on reducing costs while improving business performance which are the two pillars of competitive advantage. Only 3% of the CFOs surveyed feel that they had reduced overhead costs as much as possible and that 85% said that cost reduction is still the highest priority challenge they confront. Furthermore it was found that nearly 60% are focused on opportunities to reduce the costs of providing overhead services, by reducing non-essential spending, by restructuring costs and by standardizing the levels of service they provide.

An interesting fact that the study by Allen *et al* revealed was that the involvement and support of the CEO, contributed more to sustaining efficiency improvements (65%) than any other factor with regard to the long-tem management of general and administrative overheads. Other methods to sustain improvements include providing incentives to meet objectives (43%) and strict zero-base budgeting (27%). These findings prove that the management of overheads for senior management is one of the crucial strategic management areas, especially for company CEOs.

According to Piven (2003) it is a vital aim to maximize your profit margin and that “the easiest way to increase one’s profit margin is to reduce one’s overhead”. The statement made by Piven emphasis the importance of overhead costs in order to achieve maximum profit for the company. If a contractor does not take steps to reduce his overhead expenditure, he will more likely not achieve his company’s strategic goals in terms of their set profit targets.

Remiasz (2006) states that left unchecked, overhead, which are the costs of running a business, and that are not directly associated with the production or sale of goods and services can be a spoiler to any solid business plan. The business plan which includes the company’s strategic plans according to Remiasz can be easily disrupted and ruined if overheads are not managed properly hence the pivotal need for good overhead management by the company.

In order to successfully manage the company’s overheads it must be noted that this responsibility cannot solely lie on the shoulders of one person. It is for this reason that Joseph Knight (2006), a CEO himself, stated “that once you have determined the major categories of overhead,” to make the most of your workers, by assigning responsibility of some overhead costs to key employees regardless of what roles they play in your company, to track and give reports on specific costs. Knight believes wholeheartedly in an open book policy and to you involve your whole company. It is for this reason that overheads can require especially large amount of human resources in order to control the costs.

Graham Foster (2006) CEO of Pacific Seminars International Inc., presents that although it is important to focus on the largest portions of overhead, don’t make the mistake of cutting something that will hurt your company in the long term. The very worst thing you could do according to Foster is just to do the easiest thing and to cut heads. Labour is often the most costly of all overhead expenses, but layoffs can seriously damage workers’ confidence and sense of security without providing

substantial financial benefits. Foster suggests enriching value by providing workers with additional training, giving incentives and teaching them how to limit their use of resources. To cut overheads is not always fruitful, overheads are investments and often have more potential than the costs of having them. Therefore to train and coach for example staff can yield greater benefits than simply cutting them for reduction of overhead costs.

Newman (2007) says that “in addition to keeping unabsorbed overhead to a minimum, it's also important to be vigilant during good times and bad, about monitoring and evaluating administrative and other expenses to be sure that they're necessary and reasonable. It's easy for these expenses to creep upward until they're eating up a significant portion of your profits.” Newman reiterates the importance of keeping unabsorbed overheads to a minimum, which affects the level of profit the can company generate. To reduce unabsorbed overhead and hence keep one’s overheads as active as possible is important for the strategic reason of making money.

Battersby (2004) provides and answer to the above by stating firmly that the budget should be used to control costs. Battersby goes on further to state that “the budget of a sound business should be a vibrant document, one that is understood and that is used on an ongoing basis. While it is part of a historical reporting system, it should not be used only to see how you've measured up to your goals months or even weeks after an accounting period has closed. Rather, this important information should be checked far more frequently.”

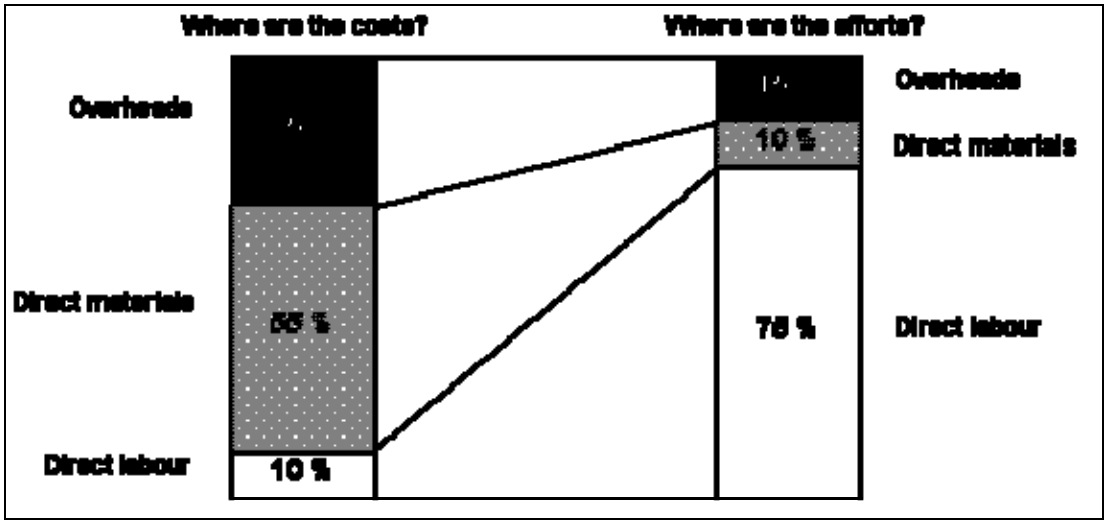
Overhead costs are a very big deal costing companies large and small thousands of dollars each year and to make sure you get everything that's owed to you, including compensation for costs of doing business, starts with proper estimating. The goal of estimating is to guide you in calculating a job price that covers all expenses and earns

the company a profit. To do this right requires comprehensive budgeting and accurate job costing, Sherwin-Williams (2008).

Roberts (2007) states that by creating annual budgets allows you to stay on top of your financial progress as your year unfolds. They arm you with the ability to reel in expenses before they kill your bottom line. They force you to think through your business' strategy and its resource allocations. Roberts emphasis the need of a budget which will assist overhead cost control.

The following diagram highlights the efforts employed in order to manage costs.

Figure 1. The effects of cost management



Tangram Technology (2008)

It should be noted that labour costs are only about 10% of the cost of the product but the largest amount of effort goes into reducing labour in the process. 75% of the effort is in reducing labour costs and only 15% in reducing overhead costs. Our efforts are incorrectly focused because we are using a model that sends us in the wrong direction when trying to manage costs.

The Pareto Principle tells us that 80% of the results in our business will be created by 20% of the activities. To improve overhead productivity, we must focus on and improve the vital 20% and cut or remove the trivial 80%.

Battersby (2004) states that one should also not be too controlling when it comes to cutting costs. The reduction of specific fixed and variable expenses can improve the profit picture of any sign business. But beware, don't cut costs needlessly. Legitimate expenses provide the framework for the business. No sign business should cut their operating budget too deeply because it will adversely affect the overall operation of the business. Overhead resources effectively are responsible for achieving the company's strategic goals. To realise a cost advantage requires proper control of overhead expenditure and keeping overheads to a minimum.

2.3 Competitive advantage based on differentiation

Previously described by Porter (1998), the second form of competitive advantage is differentiation. This typically occurs when the firm provides a better service at the same cost as that of its' competitors. In construction, for the purposes of overhead, this is only possible by ensuring greater productivity of its resources in comparison to that of its competitors.

Distinction must be made between productivity and productive. Productivity relates specifically to the level of efficiency in which an activity is carried out, however productive is the measure to which a resource is applying itself to activities. For this reason a company in trying to improve its productivity can at the same cost provide the client with better services.

Seeing that most resources such as onsite staff, cranes and teliporters etc continually have an outflow of cash associated with them irrespective of whether they are

working or not, operating at maximum productivity or not, necessitates in order to provide an differentiation advantage, they need to be as productive as possible. The latter relates specifically to unabsorbed overhead and basically it states that a resource cannot attain productivity, of any level, if it has no activities to which it can apply itself to. Therefore the second form of creating a differentiation advantage is to ensure that one's resources continually have activities to which they can apply themselves to.

A construction company's payroll can form the single biggest cost to the company other than the direct cost of its projects. This was supported in a quick survey done on the financial statements of a large construction company in South Africa from an undisclosed source. It was calculated that salaries accounted for 79% of the construction company's overhead expenses. It is therefore extremely important to further discuss employees and their respective salaries for strategic purposes.

Shin (2002) describes the main culprit and reason for large increases in overhead costs is not massive technology investment, but overstaffing. The ones who are investing in technology are the ones who are well-organized.

In breaking this down further is that on site, many foremen for example find themselves in different stages of busyness throughout the duration of the project. The state of busyness can be translated to their measure of productiveness. To be unproductive does not necessarily mean that the foreman is not able to achieve a high level of productivity. It can simply mean that the foreman does not have enough activities to which he can apply himself and his team to in order to achieve a high level of productivity. This can therefore affect the differentiated advantage provided to the client.

Some construction projects follow what is commonly known as the California Banana Curve or more commonly the S-Curve. The S-Curve is not only a measure of the

cash flow of the project but the cash flow is directly related to the amount of work performed on site in order to generate the revenue of the project. When the S-curve starts to plateau it is not wrong to make the correlation that the activities are decreasing in relation to the gradient of the curve. It is in many circumstances that at this point, or when specific trades near their end, that the managers either find foreman alternative trades to do or move them to other projects where they would be presented with a high number of activities. Bennett (2008:19) also talks about this stage and states that “finally, there is often an end phase, during which productivity reduces as the work nears its final completion. This stage is often associated with failures of planning and supervision. The end phase is usually relatively short and so does not negate the earlier improvements in productivity.”

Bennett (2008:15-17) states that the use of teams rather than individuals undoubtedly leads to inaccuracies in judging the size of projects because the size of teams varies. Teams will tend over time to move towards the size which experience shows to be most efficient. However, the size of efficient construction teams in general is fairly consistent. To a large extent this is because the nature of much construction work requires teams to rely on solving day-to-day problems for themselves. Although there is some variation in the size of construction teams, it is not sufficient to invalidate the use of teams as a measure of project size and there exists a systematic relationship between the size of projects and the size of teams. Size measured in terms of teams is, in other words, a useful measure for managers. Bennett goes on further to make the correlation that, “we can therefore accept that theoretically and practically the size of construction projects is measured in terms of days work for teams.”

The systematic relationship made by Bennett breaks a mindset that one of the greatest difficulties in construction from a data gathering point of view is due to the fact that each project is different from the other. The consistency found in that each project is unique and different is true, however it is inconsistent in the fact that the day to day operation on the site for most positions alike remain essentially the same in

terms of their functions. It is this view that contractors should focus on, in order to improve their decision making instead of using the fact that each project is different as a reason for their subjective decision making process.

Referring back to creating a differentiation advantage it translates that the timing of winning tenders is important for the purpose of providing the company's resources enough activities to which they can apply themselves to in order be as productive as possible, and hence allow the company to provide better service to the client in terms of finishing projects earlier which would also contribute to a lower cost, the first form of competitive advantage at the same time. Bennett also supports this idea and "found that the productivity benefits translate into lower costs. The cost benefits are of two kinds. First, the direct costs of undertaking the work are reduced and, second, the time on site is reduced and so site overhead costs are lower." Human resources forms a substantial part of a contractor's overhead costs, by not keeping your staff busy and working to maximum capacity it will be difficult to provide the client with a differentiation advantage.

Senior managers make the mistake that they are of the opinion that site overheads especially those of site supervision do not form part of the company's overheads. It must be stressed that most of the site supervision employees are part of the permanent staff with few being on limited duration contracts. By being employed as a permanent employee of the company the employee does not form part of the variable cost of the company which is related to the amount of construction activity experienced by the firm but becomes a fixed cost to the company. This has the effect that when construction activity ceases the company would still be responsible for the salaries of these employees and hence these staff members cannot be viewed as not being part of the company's company overheads. There is still an associated outflow of cash associated with them irrespective of whether the company has jobs or not, the

same goes for other types of overheads such as cranes and other assets of the like that have an outflow of cash associated with them.

The distinction made by most managers is correct from an accounting point of view, but it does not necessarily mean that when these costs can be directly attributed to a project in terms of its indirect nature to the onsite activities of the project that from a management point of view it does not form part of the company's company overheads. Company overheads should not be disputed as part of the head office overhead versus site overhead debate from an accounting point of view. The reason for this is that it can easily happen that by focusing purely on overheads from a cost allocating point of view can significantly take the focus off overheads from a strategic point of view and therefore the strategic importance thereof can be lost.

Roberts (2007) goes on further to suggest that "unless you implement a new sales and marketing plan, improve labour productivity, or reduce overhead, your financial performance will be controlled by the market and the economy." The statement continues to emphasize the essential combination of productivity and overheads as important factors for the financial performance of the company which is a decision of choice as opposed to the market and economy that is not subject to the control of the company.

Roberts concludes that "to run a construction company successfully, you must pay attention to the rate at which your business generates gross profit and the rate at which it spends money on overhead. The only way you can know whether those rates are acceptable as your year unfolds is to create a budget and keep an eye on its progress. Otherwise, you might as well keep expecting those ugly year end surprises."

2.4 Summary

A quick discussion on overheads may reveal that on its face value that overheads are a pure expense to the company. Even when this is not the case, overheads can sometimes be viewed as non strategic expenses and include many mediocre items such as rent, stationary, telephone bills and so forth as the main items. Overheads are far more important than only being harvesters of retained earnings. Contractors can increase and maximize their profits if overheads are reduced and kept to a minimum.

A construction company's staff forms a major part of its' overhead costs and is an area of overheads that can help the contractor yield a significant competitive advantage over its competitors. Overheads are essential for the running of the business and therefore to cut them only in order to only reduce costs will make the company unable to operate effectively and achieve its' strategic goals.

It is not uncommon for a construction company to spend 10 to 25% of its revenues on general overhead while retaining less than 5% of its revenues as profit according to Peterson (2005: 183). It for this reason that overhead costs are a major expense to a construction company and are essential for strategic purposes.

2.5 Conclusion

The research has shown that overheads are important for tendering purposes, for the company's bidding strategy, in determining the markup charged to jobs, they are crucial elements of the budget, they form a large part of senior managements' priorities, they are used in maximizing profits, the affect productivity, they dictate the need for winning tenders at specific dates, they make up the majority of the company's resources, they are responsible for the business's decisions making, they affect financial performance and hence the success of the business plan, they contribute to the company's competitive advantage. It is for these many reasons that

overheads are of strategic importance for any construction company and hence has to form part of their strategic planning.

2.6 Test of hypothesis

Sub-problem 1

1.3.1 Are overheads strategic for construction companies?

2.6.2 Hypothesis

1.4.1 The sheer size of overheads in relation to the construction company's revenue makes overheads strategic. The hypothesis is correct.

2.6.3 Comments

If overheads are not viewed strategically, the construction company will be unable to be competitive and will more than likely not survive. Overheads are more than just costs and play an important part of the contractor's strategy.

Chapter 3: Performance management of construction company directors

Sub-problem 2

1.3.2 Can the management of overheads be used to measure performance of construction company directors?

Hypothesis 2

1.4.2 Overheads form part of the business strategy and should be used to manage performance of construction company directors.

3.1 Introduction

According to Lee and Covell (2008), the average company spends 23 cents out of every dollar of revenue on overhead. Furthermore they state that most firms lack a plan or system for managing the spending for greater value. Managerial attention to overhead tends to be sporadic and is often driven by the need to cut costs in the near-term. Even if short-term cost reductions are achieved, companies then find themselves tied to a roller-coaster cycle of cost-cutting, costs creeping back over several years, and then cost-cutting again. Companies that get off the roller coaster will discover not only that financial markets rewards better overhead management, but also that changing the very way they view and manage overhead can significantly increase the return they get for every dollar invested in it.

The above statement gives an indication of the sheer size of overheads in relation to the company's revenue. In the construction industry the directors are mainly responsible for the financial aspects of the company and the spending of these funds.

As an employee of an organization there is an onus for an employee to perform which stems from his employment contract. The significance thereof is that as an employee of the company is to be held accountable to his shareholders for providing them with profit (or loss). The more important question for from managing performance is rather how much profit (or how little loss)?

The common misperception is that for instance when a man works for himself, the profit he makes whether it be one million or ten million rand does not matter. The reason for this is that he is only accountable to himself (and to his family) for the profit or loss he has made. However when working for an organization the benefit of being held accountable only to yourself per se is not enjoyed as freely as the man who works for himself. The key reason for this is that if one for example takes a contracts director, the amount of profit or loss that he should have provided to his shareholders is not necessarily in terms of the size of the monetary value, however it should rather be evaluated according to what another professional in the same position with the same responsibility would have achieved under similar circumstances.

The research in this chapter will focus solely on the contracts director in terms of his performance management with regard to the management of overheads.

3.2 Performance management

"Performance management is closely connected to performance measurement. They are sometimes mistaken for each other. In careful usage, performance management is the larger domain and includes performance measurement as a component" Wikipedia (2008).

Bourne *et al* (2003:15) states that performance measurement is the process of assessing progress toward achieving predetermined goals. Performance

management is building on that process, adding the relevant communication and action on the progress achieved against these predetermined goals.

According to Stiffler (2006) in order for a company to become performance driven, the organization must link:

1. The objectives of the organization with the goals of its individuals.
2. The budgets and resources of the organization with the objectives of the organization.
3. The measurement of past performance with adjustments to the future direction.
4. The information in finance with the information in human resources.
5. The pay of each person in the organization with that individual's performance.

Peterson (2005:192), states that many companies will benefit by breaking down the annual general overhead budget into monthly overhead budgets. This provides monthly milestones that the manager can measure performance against, rather than waiting till the end of the year.

Communication and action which are the steps that completes the performance management process, after the performance measurement has taken place, leads to the following aspect of performance management which is that of accountability.

Mullich (2008) states that the biggest obstacles to the successful execution of performance management are "a lack of accountability and a culture that does not support measurement."

Accountability can therefore play an important part in measuring performance of contracts directors in construction companies.

3.3 Accountability

"Accountability is a concept in ethics with several meanings. It is often used synonymously with such concepts as answerability, enforcement, responsibility, blameworthiness, liability and other terms associated with the expectation of account-giving. As an aspect of governance, it has been central to discussions related to problems in both the public and private (corporation) worlds" Wikipedia (2008).

In leadership roles, accountability is the acknowledgment and assumption of responsibility for actions, products, decisions, and policies including the administration, governance and implementation within the scope of the role or employment position and encompassing the obligation to report, explain and be answerable for resulting consequences.

Champagne (2008) describes accountability as arguably one of the trickier overhead challenges, since managing overheads involves accountability at multiple levels. To simplify this challenge, most companies simply define accountability at the shared service level and leave it at that. More successful organizations, on the other hand, split this accountability into its manageable components. For example, management of shared services functions can be accountable for policy, process, and the manner in which work gets performed. But there is a second layer that deals with how much of a particular service gets provided and it is that component that must be managed by operations, if we are to hold them accountable for real profit and loss. To do this right requires some hard work on the front end to appropriately define the drivers of overhead costs that are truly within line management's control.

Accountability is a crucial part in the measuring of performance and would have to be applied to the management of overheads in order to hold contracts directors

accountable to the latter.

3.4 Managing performance

Organizations achieve a competitive advantage when they develop a culture that fosters improved performance, one that holds a high respect for facts, is customer-centric, competes from a common playbook, makes data-driven decisions, and promotes cross-group collaboration, alignment, and execution, according to Fitts and Aziza (2008).

Performance management is about giving people the best information to make the best decisions," says Randy Benz (2008). It is important for contracts directors to be presented with the best information for the reasons the contracts director will be held accountable for the outcome of his decisions once the effects have been measured and performance thereof has been evaluated.

Koskela et al (2006) states that construction does not have a specific method to measure performance and that the construction industry does not have a solid data base such as found in the manufacturing industry. The reason for this is because construction data fluctuates substantially due to the fact that construction projects are considered one of a kind in that they differ according with size, type, budget, contract, company culture, etc. This can have the effect that is difficult to manage performance of different projects when using the same methods.

Resnick (2008) on performance management states that consistently successful companies create high expectations, set highly demanding goals, and consistently achieve excellent results. In order to fulfill its vision and ambitions, it is vital that an organization execute to the highest standards. Performance management is a defined process for aligning organizational, team and individual goals, and for continually improving team and individual performance. Overheads costs are not isolated and

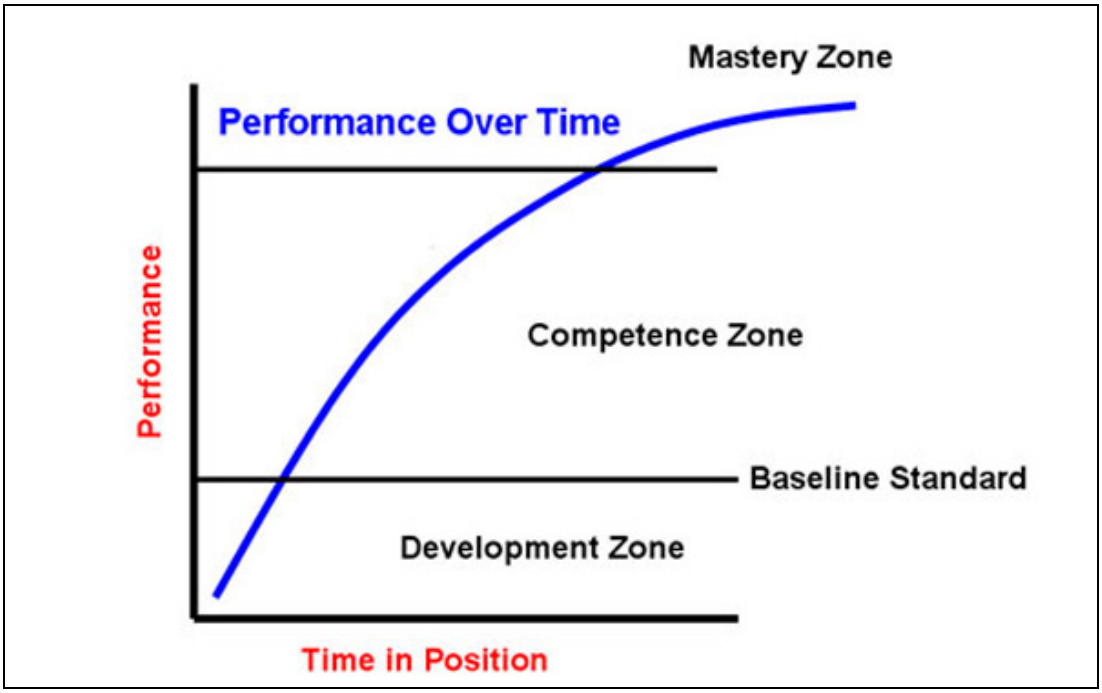
flow throughout the various functions of the construction company, therefore the goals that the contracts director will be held accountable for, needs to be aligned with individuals and teams of the organization.

Resnick states that the process is also a tool that enables employees to know exactly where they stand and what they need to focus on to improve their own performance and to grow within the company. This can only occur when leaders and employees work together to define each individual's purpose, core responsibilities, results-based goals, measures, and stretch targets against which performance can be monitored.

Resnick further adds that in an organization without a performance management process, leaders often base their performance reviews on annual meetings in which judgment or opinion form the basis of the discussion, rather than actual results based on performance. The review and feedback sessions throughout the performance management process enable leaders to base their performance reviews on results because of the clarity of goals and measures that have been set. Feedback sessions, whether about productive or nonproductive performance, are important opportunities for communication and improvement. A performance management process enables leaders, teams and employees to perform more effectively, thus improving the performance and business results of the organization as a whole.

Resnick supports the idea that the performance curve may be one of the most useful diagrams a leader can use with an employee to come to a common understanding of that employee's current level of performance, and the need for continued development in a position. This is important for the construction industry as the best contracts director tends to be the director with the most experience. However experience is not a substitute for performance which is superior. To identify on which respective level each a director is will aid in identify training needs in order that these directors successfully perform their duties.

Figure 2. Performance Curve



Roberts (2007)

Resnick presents the above performance curve and states that the performance curve also shows that there is a mastery zone beyond the competency zone. Mastery recognizes that this employee has achieved the highest levels of performance in this position as an individual contributor. Very often continued growth at the mastery level is reflected in developing and coaching others, providing cross-functional interfaces, strategic initiatives, process improvement, new technology development, etc. These are all examples of ways a job might be enriched both for the personal continued growth of the employee and the continuation of added value for organization

Performance management is not there only to create profit but for the continued development of employees. Profit is largely a byproduct resulting from improved

performance and cannot be the only yard stick in order to evaluate performance of contracts directors. It is more important for construction companies to equip more contracts directors with the skills to reach this master zone instead of punishing them on poor performance which does not necessarily solve the problem. However it must be noted it is far worse for the contractor to keep a contracts director in his directorate position without training them further than it is in punishing them for poor performance.

Cokins (2003) states that it is a tough time to be an executive according to surveys by the Chicago-based employee recruiting firm, Challenger, Gray & Christmas, Inc., who repeatedly reveal increasing rates of job turnover at the executive level compared to a decade ago. In complex and overhead-intensive organizations where constant re-direction to a changing landscape is essential, the main cause for executive job turnover is the failure to execute their strategy.

Why does it feel that in the construction industry that this is not always the case? Most directors who have worked their way up to executive level remain there on many occasions until they reach the age of sixty or more and only to leave as a result of them having to retire and go on pension. This is one of the hindrances provided by Goodman and Chinowsky (1997:59) whereby young potential graduate employees can expect to spend approximately twenty to thirty years or more in the industry before assuming executive level responsibilities. It is not necessarily that they do not have enough experience after ten years but the lack of proper performance management might account for the slow change in contracts director turnover in the industry.

Lee and Covell (2008) present the following view point with regard to overheads, “despite its potential strategic and financial importance, however, many companies view it as an afterthought. Indeed, very few of them have a systematic plan for

classifying it and managing it for returns. However most managers lack the time and patience to categorize and assess their company's overhead thoughtfully. As a result, the process devolves into either indiscriminate across-the-board cuts, or cuts based on benchmarks or the subjective perceptions of value provided by an overhead service or department." Benchmarks and employee perceptions can certainly be useful reference points, but neither approach really helps companies make the distinction referred to by Drucker (1993:8).

Lee and Covell (2008) further state that "clearly, neither benchmarking nor an aggregate target approach adequately considers value and productivity. First, both are based on a static, point-in-time assessment of spending that fails to address the nature and timing of expected future benefit streams. Since productivity and value are measured against what outputs are generated today, what tends to get cut first are the more speculative overhead spending programs, which have greater potential return on investment. Second, both approaches add little to management's understanding of the reasons behind the spending, the root drivers of costs." Measuring of performance is not necessarily based on the cutting of costs or on reduction of overheads as these are investments which returns can far exceed the costs involved of owning them.

Upon interviewing a contracts director of a large construction company in South Africa by an undisclosed source (2008), it was found that there was no specific performance review system in place in order to accurately review the success of overhead expenditure for a certain period.

Lee and Covell (2008) supports the finding above by stating that "this problem is further compounded by the fact that many companies lack a measurement system that goes beyond cost and productivity. Likewise, senior managers who do not have knowledge or training in specific functional areas are at a great disadvantage when

trying to assess spending plans generated by subject matter experts. Managers, however, need to recognize that accounting for the spending, which is essentially about recording the consumption of resources, is a very different exercise from assessing the value generated by that spending." Lee and Covell further suggest that one has to view overheads as an asset or assets of the company, and break the view that they are inherently only costs.

The first step in applying the brakes to this damaging cycle is to change the nature of the conversation about overhead. Rethinking the conversation requires dispensing with an overhead is a burden mindset and fundamentally reframing how all parties view overhead spending. It starts with challenging some basic tenets; consider, for example, how the fundamental attributes of overhead closely resemble those of an investment, and how overhead costs can be better thought of as investments in competitive competencies: Drucker (1993:8) supports the statements made by Lee and Covell with regard to viewing overheads as investments as opposed to purely a cost burden. This problem is not new and managers have grappled unsuccessfully with overhead for decades. Management guru Peter Drucker in the 1950s complained about the variety of costs that accountants lumped together as overhead and warned managers to make a careful distinction between productive and non-productive overhead.

The four classes of overhead assets identified by Lee and Covell (2008) are based on their distinct potential benefit streams. Each class has a different investment logic that specifies how asset performance should be evaluated.
For any given function, activities and investments can be classified according to whether they:

1. Provide a basic service such as accounting or payroll administration.
2. Enhance the efficiency of the organization such information management systems
3. Reduce or mitigate risks such as work-safety programs and insurances.

4. Enable the strategy of the firm, these are must have overheads which the company requires for strategic success.

Lee and Covell state that by addressing these key issues, senior leadership can define an overall overhead strategy that specifies investments, performance targets and timing, and the capabilities required to deliver the overhead strategy.

To support the new overhead programs, people need to be held accountable for the results. Systems of reporting, performance management, and incentives need to be strengthened to support overhead programs aligned with company strategy. In particular, most budgeting processes will have to undergo significant change to ensure that the right frameworks are used to evaluate the different types of investments and to judge the appropriate timing of investment outlays.

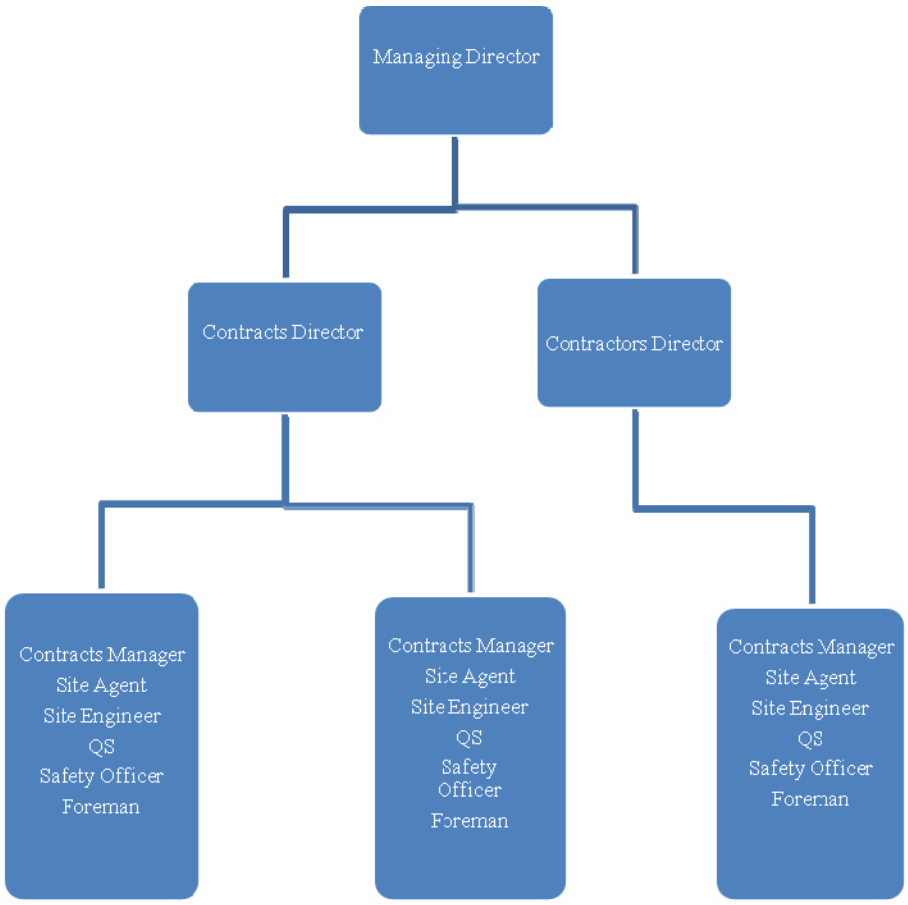
To help steer the organization in the right direction, companies should adopt management tools such as performance scorecards, early warning systems, and tracking mechanisms that provide an integrated picture of total overhead costs and associated multi-period performance.

When viewing overheads as investments it is possible to evaluate the return on these investments which can be used as a basis for measuring of performance of contracts directors when it comes to overhead management.

3.4.1 Organogram

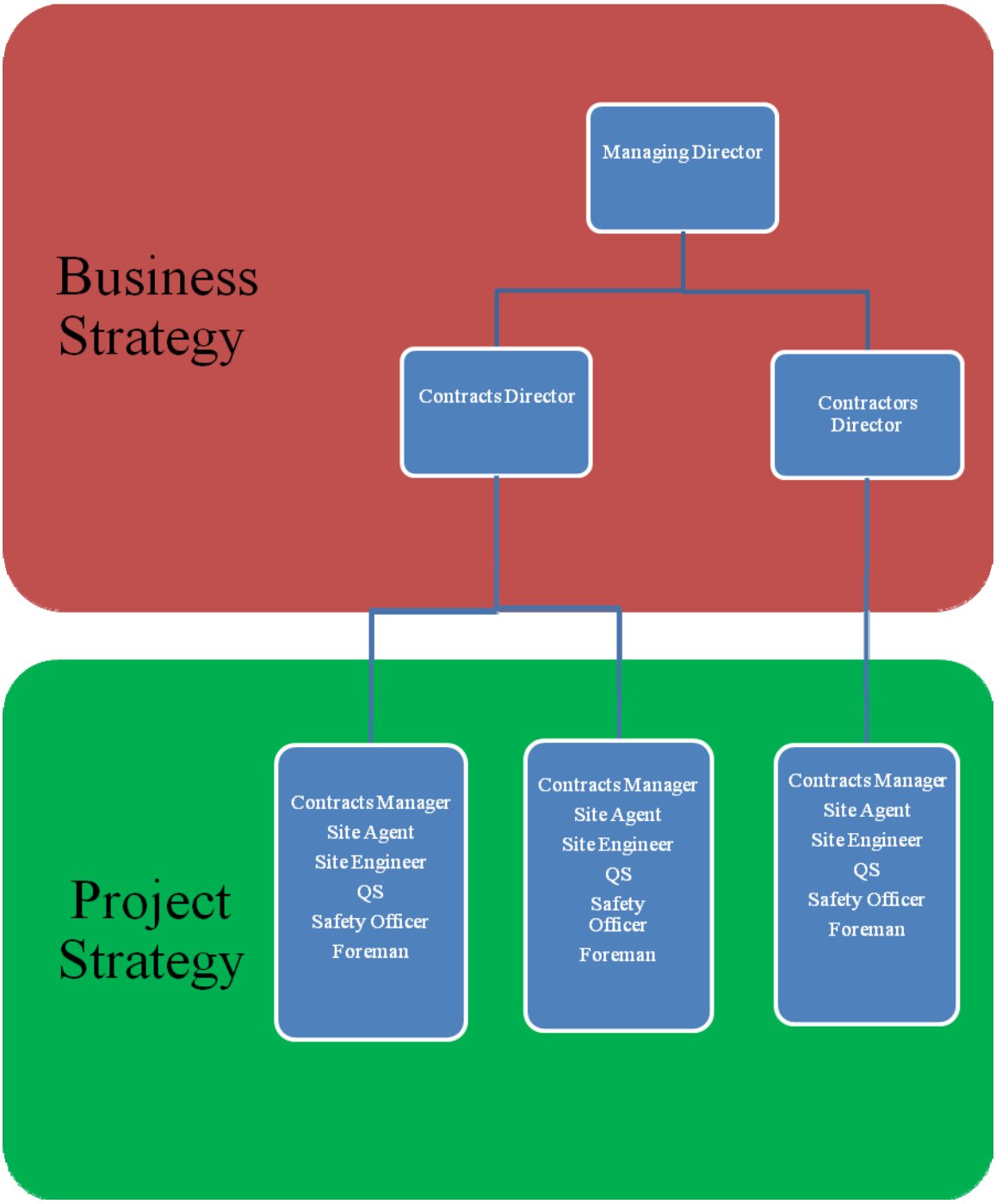
The following diagram represents the basic orginisational structure for a general construction company, figure 3.

Figure 3. General construction company organogram



A typical company organogram can with relative ease establish the hierarchical structure of the organisation and show the relevant positions and lines of authority to be followed. Very often which is not depicted is that of the different roles the persons in the structure contribute to the compnay's success. The following diagram in figure 4, aims to present the different roles referred to above.

Figure 4. Organogram separating business and project strategy

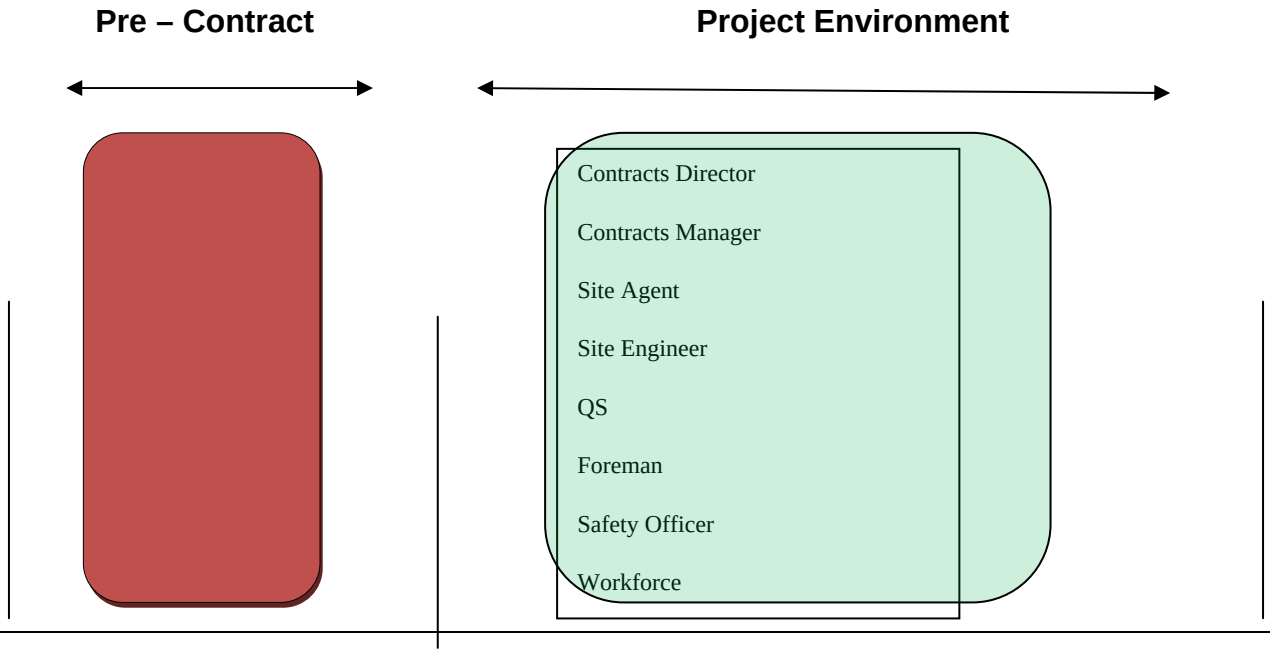

Business Strategy
Managing Director
Contracts Director
Contractors Director
Project Strategy
Contracts Manager
Site Agent
Site Engineer
QS
Safety Officer
Foreman
Contracts Manager
Site Agent
Site Engineer
QS
Safety Officer
Foreman
Contracts Manager
Site Agent
Site Engineer
QS
Safety Officer
Foreman

The above diagram is exactly the same as the previous diagram, however the colour used to shade in the background clearly depicts in which camp the relative persons according to their position find themselves in. For the purposes of performance management one should particularly note the position in which the contracts director finds himself.

In the construction industry the perception is that contracts directors should be accountable for their projects' performances which is true, however the misconception comes in when it is viewed that the director's own performance should be measured against the project's success which is not true. A contracts director's own performance should be measured according to the success that his business strategy has achieved with regard the company's goals and secondly with that of the company's overall business strategy.

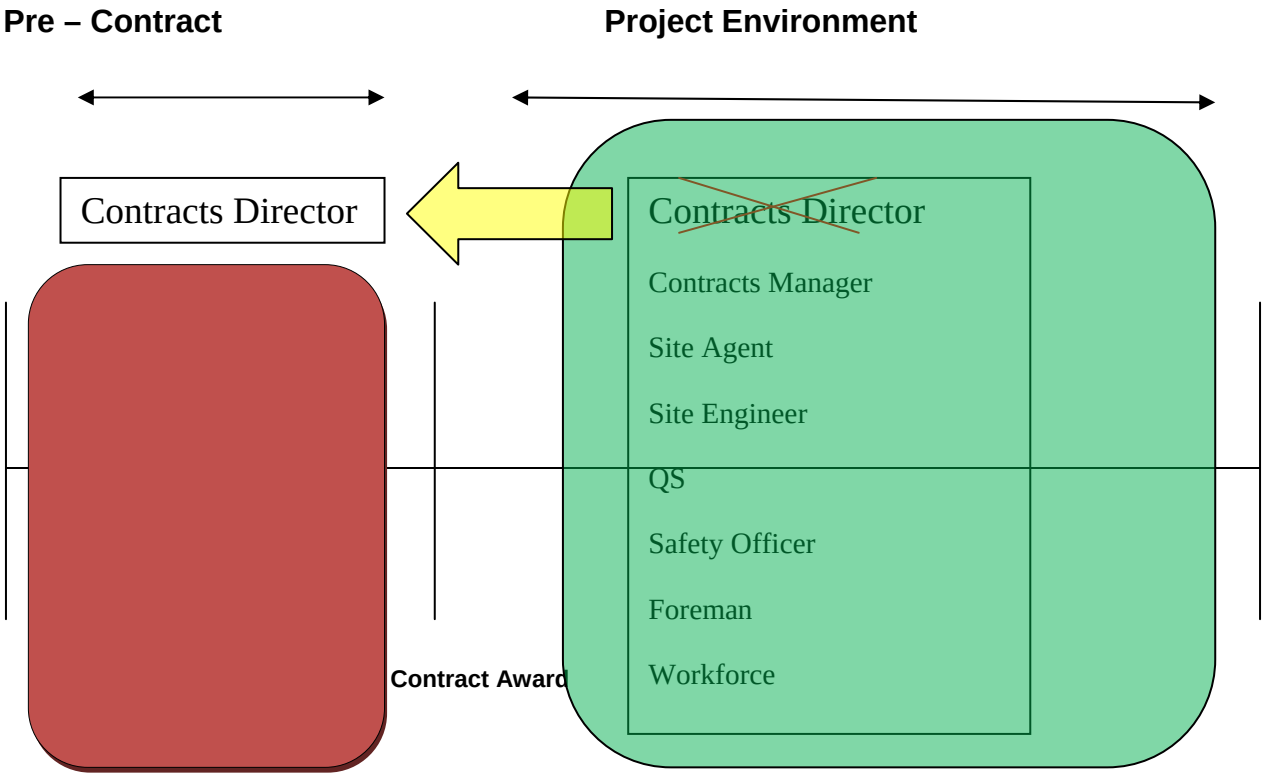
To further illustrate the change from a contracts manager's performance measurement area which was originally measured on the project success, to a measurement according to business strategy success is shown in the following figures namely figure 5 and figure 6.

Figure 5. Contracts director performance management area



The diagram above, figure 5, shows the misconception that exists with regard to the performance management area of contracts directors. The diagram below clearly shows the area in which a contracts director's performance should be measured.

Figure 6. Contracts director performance management area modified



As soon as a contracts manager gets promoted to a contracts director, the scope of his work changes drastically and hence his area of performance measurement, figure 6.

From being purely in the project environment the director then moves in to the business strategy part of the company and basically is responsible for everything up

until contract award. He thus leaves the performance of project almost entirely in the hands of his on site team which is true; he has very little influence regarding the manner in which the construction activities are executed on site and with the day today running of the site.

The organogram usually also shows the levels which an employee should move through in order to reach the contracts directors level.
Goodman and Chinowsky (1997:57) presents the problem that aspiring directors are generally assigned to follow a familiar project-orientated career path, whereby these employees are learnt to ensure that projects are efficiently planned, coordinated, implemented, and controlled. They are of the view that the learning of these project management concepts and principles has evolved itself into a project management model which proves inadequate for addressing the skills required to be successful contracts directors.

Betts and Wood-Harper (2004:551) states that executives require skills for creating competitive corporate strategies, forecasting the impact of new technologies and enhancing client relationships.

By moving through the traditional hierarchy the director would have sufficiently learnt how to create a system in which a project can successfully be managed and controlled and whereby performance of the project can quite easily be determined. However the skills required in creating a system from which a project can successfully operate from, is sadly not the same skills required in order to create the strategy from which the business needs to operate successfully from. It is this dilemma which makes it difficult for directors to create an environment whereby their decisions can accurately be measured for performance against set goals or budgets etc.

3.4.2 Budgeting

Doost (2001) states than an incremental budget is a budget that is prepared based on prior-year figures, allowing for factors such as inflation. Although such an approach is used by construction entities, most people frown upon such a practice because it is contrary to the whole notion of a budget, which is supposed to be a calculated and wise anticipation of the future course of events with due consideration of all potential factors. Some of the essential costs involved in the development of a budget are described as follows, Entrepreneur (2008);

1. Material. All raw materials used in the development of the product.
2. Direct labour. All labor costs associated with the development of the product.
3. Company Overheads. All overhead expenses required to operate the business during the development phase such as taxes, rent, phone, utilities, office supplies, etc.
4. General & Administrative Overheads. The salaries of executive and administrative personnel along with any other office support functions.
5. Marketing & sales. The salaries of marketing personnel required to develop pre-promotional materials and plan the marketing campaign that should begin prior to delivery of the product.
6. Professional services. Those costs associated with the consultation of outside experts such as accountants, lawyers, and business consultants.
7. Miscellaneous Costs. Costs that are related to product development.

8. Capital equipment. Determine the capital requirements for the development budget,

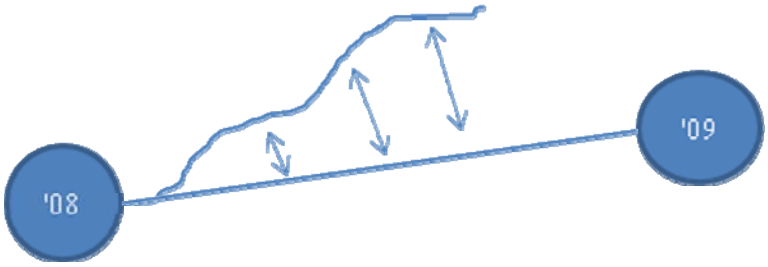
Budgeting is an important part of a contracts director's responsibilities as provided from the above list. Forecasting and planning of the following year's budget is important because the assumptions made on for example the amount of work to be secured influences the amount of projected revenue from which markup regarding profit and overhead percentages are to be determined.

It is very common for contract's directors to once being promoted into the position to remain there for many years, without being dethroned by another younger employee with greater potential. The reason for this might me because 63% of these directors according to Goodman and Chinowsky (1997:59) have been with the company for twenty years or more. It seems that loyalty to these employees' often only results for a slap on the wrist or a brush over the knuckles when their performance for the period has been poor. To illustrate this problem and how problematic it can be the following diagrams are presented.

Figure 7. Budget for the period '08 to '09

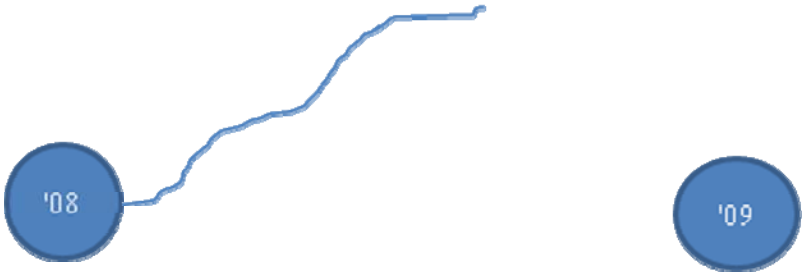
Figure 7 is a simplified illustration for a budget for the period 2008 to 2009. The straight line represents the planned forecast and serves as the benchmark from which to evaluate current progress.

Figure 8. Budget '08 to '09 performance area



During the period in which the budget is in operation, its performance can be viewed by comparing the actual performance to the proposed budget, figure 8. The actual performance is represented by the nonlinear line above the straight line and the variance between planned and actual is measured by the distance or space between the two lines respectively.

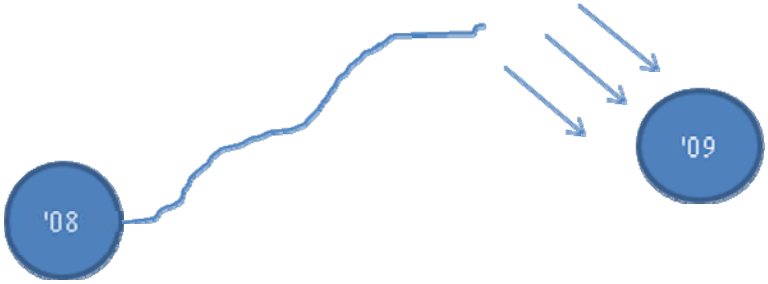
Figure 9. The effect of not using a well planned budget 1



A well planned budget that is developed in the beginning of the period and that is only used as tool in order to compare end of the period results holds as little value as

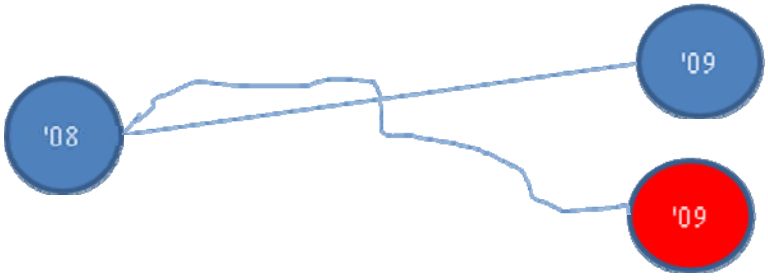
having no budget at all as shown in figure 9. The misconception is that budgets are only used to evaluate actual versus planned progress for the year. However budgets are far more important; they are extremely goal orientated, target specific in approach, direct company decision making, guide planned expenditure to name but a few and hence form an essential part of the strategic plan of the business. Furthermore they also hold people accountable for specified results and so forth.

Figure 10. The effect of not using a well planned budget 2



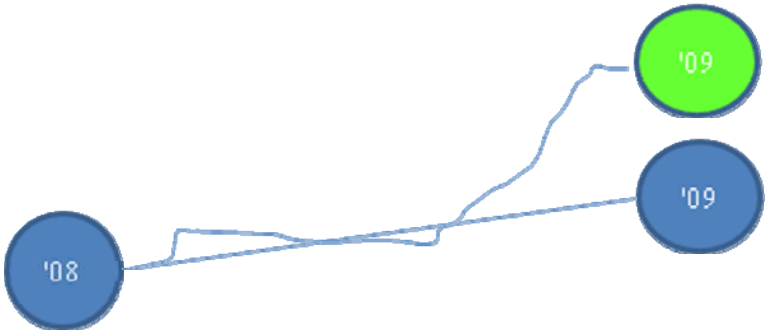
Without using the budget as a strict guideline for running the business during the year the company will find itself at a position somewhere around the ’09 target mark with very little concern of how they are performing but only have one goal in mind and that is to reach point ’09 or more probably somewhere thereabout, figure 10.

Figure 11. The effect of not using a well planned budget 3



Companies operating using the approach described above will more than likely not reach the originally planned blue ’09 target mark but would end up falling short of their planned targets resulting in a position somewhere around the red ’09 mark, figure 11.

Figure 12. The effects of poor estimating of budget targets 1



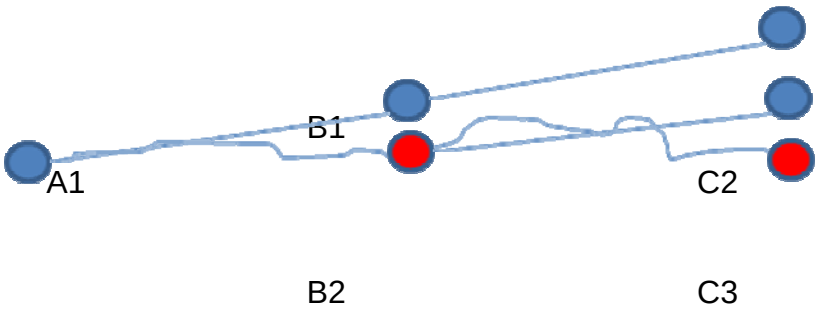
Planned targets from the budget can in some cases be exceeded, but this should only be as a result of the extra ordinary performance of its employees or due to conditions beyond the control of the company, figure 12.

One should take into consideration that budgets should be as accurate and realistic as possible and that good budgets will almost always represent a slightly higher than realistic probability of achieving their targets and hence should not easily be accomplished let alone exceeded.

Companies not using their budgets as guidelines during the year and are not flexible will only exceed their targets in their budgets as a result of poor estimating and forecasting of their budgets.

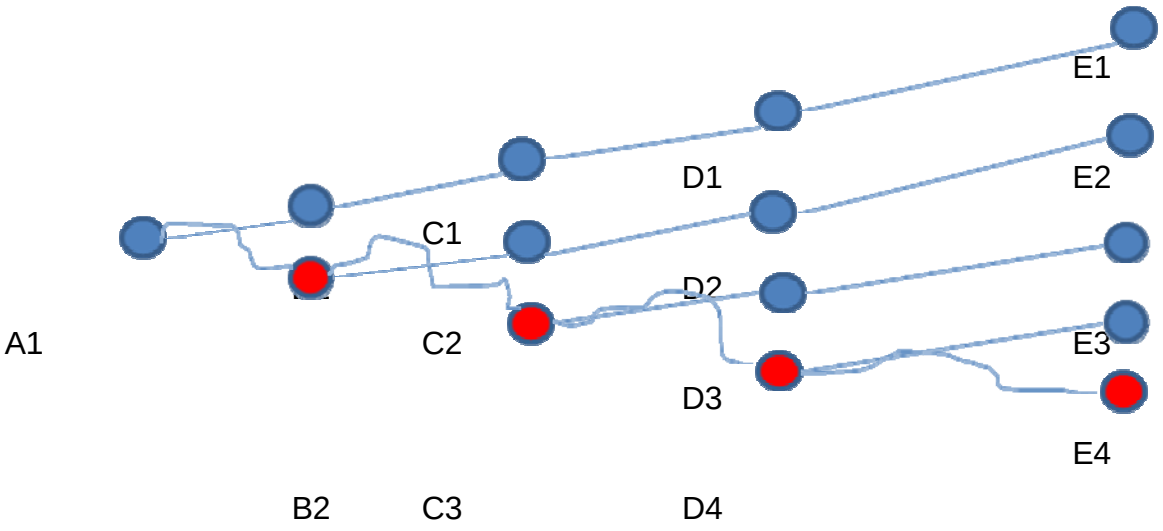
This is in fact poor performance on the part of the directors and the budgets exceeded do not necessarily in any way provide conclusive proof that the company has performed to its optimum. More than likely if the budget was done properly it would prove poor financial performance on behalf of the company and its directors.

Figure 13. The effects of poor estimating of budget targets 2



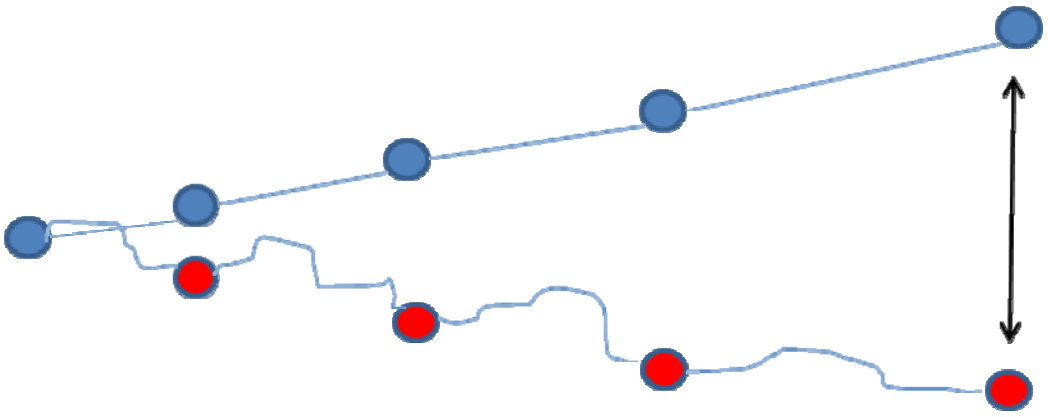
If the company does not address the poor estimating problem immediately the following period's result will likely be closer to point C3 than C2 which should be very concerning for the company's directors in terms of their performance, figure 13.

Figure 13. The long term effect of poor estimating of budget targets



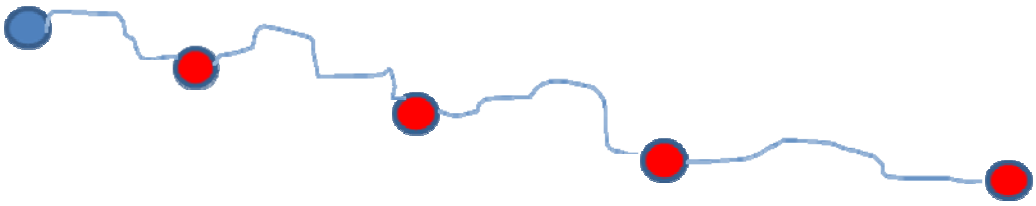
If the poor budgeting techniques persist and the same directors are not held accountable or given the necessary training to improve budgeting performance, the problems will keep on replicating for as many periods as long as these directors are still at the helm, figure 14. Resnick (2008) supports this view by stating that it is not enough simply to monitor progress against established objectives. Progress must be communicated by the leader to the employee and support must be provided in the form of coaching and counseling to improve performance on an ongoing basis.

Figure 14. The effect of not evaluating performance over a number of years



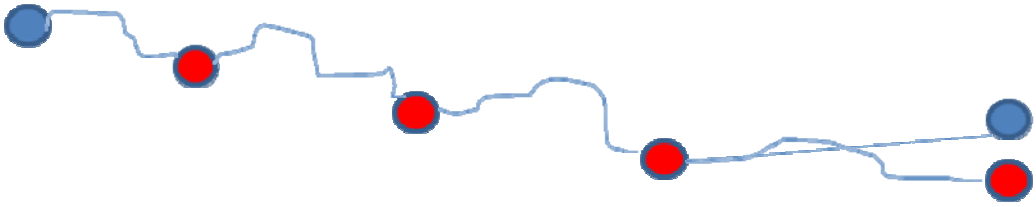
By only evaluating performance of contracts directors on a yearly basis the company will never be able to see the unacceptable margins if over a number of years records are kept and evaluated. The variance is shown by the vertical black line between the blue and red dots. The blue dots do not necessarily represent the budgets set by the company themselves but are rather a representation of the perfect budget, figure 15.

Figure 15. The effects of not keeping records for performance measurements



Without keeping record of the previous years' budgets the company will not be in a position to determine its performance over the past years, figure 16. The reason for this is that they will be unable to judge their position in terms of where they could or should have been in relation to where they are now as a result of not keeping records.

Figure 16. The effects of keeping record for one period only



The only variance the company will pick up in that of the previous period is that of the previous period which proves insufficient for proper performance management, figure 17.

Roberts (2007) states that in the construction industry, past performance is the best predictor of future performance, unless you force change. He states one should build your budget on the foundation of your recent three year financial performance. In order to do that, the company must gather together its balance sheets, income statements and cash flow statements for those years.

Roberts contributes to the suggestion that to ensure proper performance, hence also proper performance management, records of a number of years needs to be used

Figure 17. The possible variance in evaluating performance over a period or periods

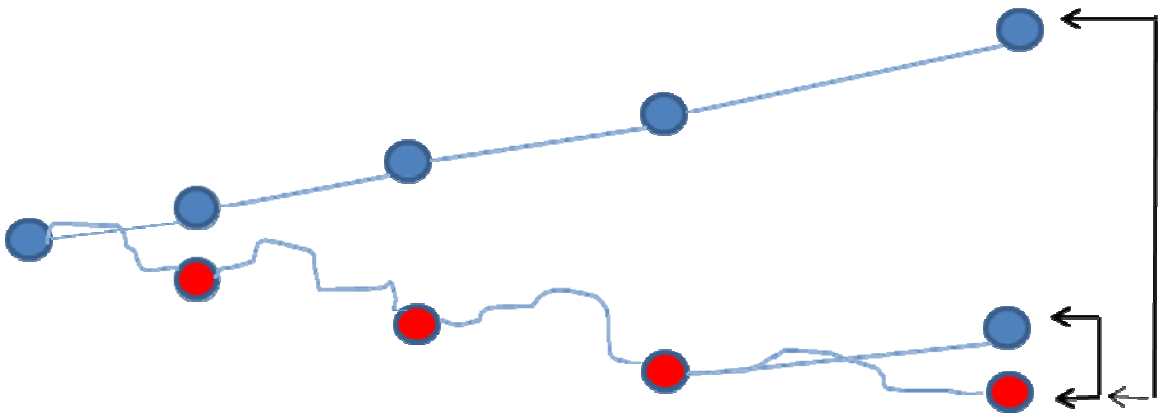


Figure 18 above clearly shows the possible variance that can be measured by reviewing performance of a director's or directors' budgeting techniques over a one year or multiple period in years.

By adopting the principle of a technique such as the above would make managing directors think twice about just giving a contracts director a slap on the wrist for not meeting his budget targets. The problems is that contracts directors use a lot of subjective reasoning and opinions in making up these budgets and therefore often are not even able to prepare accurate one year budgets never mind three year strategy plans.

Cognos (2008) states that performance with regard to finance must be able to quickly identify, analyze and communicate important budget variances. The second important fact is that performance is not necessarily to always point out wrong doings or errors

by employees but has greater positive connotations if handled properly in that the company has the ability determine how quickly the company can capitalize on a new situation for better performance.

Resnick (2008) supports the idea above and states that this is not a process designed to control behavior and play gotcha with people. The performance objectives for each employee must be tied directly to the business plan of the organization. It is clear that budgeting is one of the most important areas whereby contracts directors performance can be measured.

Roberts (2007) discusses his view on contractors' aversion when it comes to budgeting. On the one hand, contractors tend to be obsessive about planning field work. They know that letting their field crews sort out what to do from day-to-day is a recipe for disaster. But on the other hand, they don't apply that reasoning to their business. The lack of business planning leads to poor financial performance. Roberts states it is critical to have a budget and it needs to reflect the reality of one's market. You then need to keep a close eye on its progress and take corrective action when it's called for.

Roberts statement clearly highlights that contracts directors should not be involved in the day to day planning and running of the site. To set up a budget is a priority for the director and to monitor its progress. Overheads are one of the main budgetary items and according to Stiffler (2006) the budget is an important part of the performance management process of an organization.

3.5 Summary

Overheads form a substantial cost in relation to the contractor's revenue and the lack of overhead management will send the contractor on a roller coaster ride of cutting costs.

Viewing overheads as investments is important for the contractor and will allow for a proper performance management process to take place, by allowing the return on overhead expenditure to be measured against set variables.

Accountability will allow for directors to be held responsible for overhead expenditure and management.One of the key areas in which contracts directors can be held accountable is in the drawing up of budgets for the construction company which is also shown in the construction company organogram.

The budget is important for estimating overhead expenditure and whereby the head office overhead percentage can be extracted for the purposes of determining the markup to be used in the bidding process in order to ensure the winning of tenders for the construction company.

Proper overhead management by contracts directors will ensure greater profits for the construction company and allow for an effective performance measurement culture in the company.

3.6 Conclusion

Employees need to be held accountable for the areas where they have the most influence. Contracts directors are responsible for the construction company's budget and this forms a large portion of the organization's strategy in which the management of overhead forms an important part. It is for this reason that the management of overheads is an essential area for performance management of contracts directors.

3.7 Testing of the hypothesis

Sub-problem 2

1.3.2 Can the management of overheads be used to measure performance of construction company directors?

3.7.2 Hypothesis

1.4.2 Overheads form part of the business strategy and should be used to manage performance of construction company directors. The hypothesis is correct.

3.7.3 Comments

Contracts directors are responsible for setting the company's budget as part of the business strategy in which overhead expenditure is planned and whereby the basis of markup for tendering purposes is established. These are crucial areas for which performance must be measured as the company's existence in dependant on winning tenders and meeting budgets for stakeholders.

Chapter 4: Head office overhead claims in construction

Sub-problem 3

1.3.1 Does a single method for processing head office overhead claims in construction exist?

Hypothesis 3

1.4.3 A single method in law does exist relating specifically to construction cases.

4.1 Introduction

When construction is delayed by owner-caused actions, contractors request compensable delay. It is difficult to reach agreement on causes and extent of delay and even tougher to agree on the cost of delay. This is due, in part, to the lack of a single, accepted method of calculating home office overhead, Zack (2001).

Bower (1999:263) states that commonly “it is accepted that such costs are very difficult to evaluate systematically, and hence the parties to the contract have been left to argue over the cost and time effects of a variation and the compensation due.”

A significant part of a contractor’s costs are time related. These are most affected by disruptions such as the effects of variation orders, and as such are a major source of claims and disputes, Merna *et al* (1996).

“The context of delays significantly affects delay responsibility. Among other things, recoverable damages for a delay should be related to the timing of the corresponding delay and its effect on indirect costs,” states Ibbs and Nguyen (2007).

Owner-caused delay or delay brought about by owner-assumed issues is common on construction projects. Delay may have many sources, including directed or constructive changes, delays in furnishing owner-provided equipment or materials, differing site conditions, slow responses to shop drawing submittals or requests for information, etc. Despite the number of reasons for owner-caused delay, the result is almost always the same. Contractors typically request an equitable adjustment to the contract to compensate them for both time and cost.

It is often difficult for owners and contractors to reach agreement on the cause of delay. Contractors tend to view most delays as the responsibility of the owner. Owners, on the other hand, often try to label delay as either third party caused or concurrent delay, either of which results in excusable, non compensable delay. Proper delay analysis usually sorts out this argument.

Once agreement is reached concerning the cause of the delay, the argument turns more technical namely in what is the extent of the delay? Due to the complexity of modern day scheduling and multiple ways to perform delay analysis, negotiations over the extent of a delay are often difficult. Delay analyses performed by two different parties, on the same incident, can yield results substantially at odds with one another. Generally, however, if both the owner and the contractor stay focused on resolution, some agreement can be reached on both the extent of delay and quantification (i.e. non-excusable, excusable, compensable and concurrent).

The issue is however not settled there and the argument then turns to financial impact. That is, what is the cost of a day of compensable delay? Provided that the

contractor maintains reasonably good job cost records, determining daily site overhead costs is not terribly difficult. However, in owner-caused delay situations, contractors frequently seek recovery of extended or unabsorbed home office overhead. This is where negotiations often deadlock. The reason is that there is no standard accepted way of calculating head office overhead.
Most contractors want to use formulas to calculate their damage. Most owners, on the other hand, want to see real damage based on some sort of audit i.e. “Prove that your overhead increased as a result of my delay.”

4.2 Head Office Overhead Claim

Winter (2001) states that a contractors’ delay claim often contains a claim for head office overhead and profit. They often use an arithmetical formula to calculate this. When using formulae one must ensure that it is used with caution. Where there has been a breach of contract, the claimant is entitled to damages to place it in the (financial) position it would have been in had the contract been properly performed, providing that the loss is not too remote or unforeseeable.

In the standard forms of contract, the drafting bodies have codified this principle. So, the contractor is entitled to be paid the direct loss and/or expense that he has incurred because the regular progress of the works has been delayed by the employer. The additional costs resulting from delay may be directly related to extra work that has to be carried out (labour, plant and materials), or they may just be the result of being on site for a longer period.

The latter, time-related, costs will include two types of overheads:

- site overheads which are specific to the site itself such as utilities, insurance and site accommodation;

- head office overheads i.e. the costs of running the company's general business as distinct from the site costs of the particular contract, including rent of the head office and salaries of office staff.

Head office overheads can be further sub-divided into:

- additional overheads which through careful record keeping can be attributed to the specific contractual delay; and
- unabsorbed overheads: some costs will be incurred by a contractor regardless of its volume of work such as rent and some salaries. Where a contractor is unable to complete a job within the time it originally anticipated, it is potentially prevented from obtaining new work which will make a contribution to these overheads (and a profit), because some or all of its resources are tied up completing the previous job.

Molloy (1998), describes the situation in the following, one of the principal elements of a claim for reimbursement of the costs of the prolongation of the time for completion of the works is a claim for the costs of head office overheads. However such a claim, and the basis upon which it is made, is often misunderstood. In simple terms a contractor may seek reimbursement of its head office costs in one of two alternative ways:

1. As additional overheads actually expended as a result of the delay or,

2. As lost opportunity costs

An opportunity costs claim is based on the premise that because of the delay the contractor's organisation is unable to move on to another project and earn the combined profit and head office overheads of which it is reasonably capable, i.e. the opportunity to earn elsewhere is lost.

In order to pursue a claim on the opportunity costs approach, it is necessary for the contractor to prove the following:

1. That the overhead represents a reasonable one by reference to audited accounts for the appropriate period.

This is generally not a problem provided contractors are able to provide copies of their audited accounts.

2. That work of the same level of overhead recovery was available during the period of delay.

This can be proved by production of tender enquiries and publications (such as the Government Gazette) indicating the level of construction activity during the period of delay.

3. That the method of working of the Contractor was suitable for this approach.

This can be proved by showing that the Contractor is actively seeking extra work during the period of delay, and by providing details of tenders which it has submitted. Difficulties can arise where economic conditions are such as to restrict the number of tendering opportunities available.

4. That the Contractor was prevented from taking on further works as a result of delay.

This is the real difficulty. Few contractors actually turn work away due to delays on a single contract. They are more likely to either increase their resources by subcontracting works out or by employing extra staff. Of course this may have the effect of increasing a contractors tender prices and making it less competitive, but to prove that this has denied the contractor the opportunity to carry out work elsewhere is very difficult. The best a contractor can do is to be aware of the need for such

evidence and ensure that records of how delays are affecting management decisions are kept by minutes of directors meeting, memos, internal directives and of course letters to the appropriate employer advising of the position. Whilst the opportunity costs approach provides a straightforward and easy method of calculation, and whilst it is probably easy in principle to prove an entitlement to opportunity costs, the reality is that evidence will be far from easy to provide.

Linking increased site overheads and properly recorded additional head office overheads to project delay is not difficult. By definition, however, it is impossible to prove that the rest of the head office overhead expenses remain unabsorbed because of a specific contractual delay. It is for the calculation of this element of an overhead claim that various formulae have come to be employed.

The fact remains that head office overhead claims are extremely difficult, Winter (2001) suggests that "one approach may be to calculate the head office overhead and profit claim using all of the different formulae, if there are any anomalies in the application of a particular formula, the comparison between the different results will reveal this."

4.3 Case study

The following paper was presented by James G. Zack, Jr. at the 3rd World Congress on Cost Engineering, Project Management & Quantity Surveying, 2001 and is titled, "The calculation and recovery of home/head office overhead" and sheds more light on Jeremy Winter's suggestion about comparing all the formulae for one claim. Whether the method is used for determining budgets by top management or for claims by lawyers it makes no difference, therefore this paper has equally significant consequences in estimating budgets which should not be undermined.

4.3.1 Bid costs

Zack (2001) states that there are few regulations concerning accounting for head office overhead costs. Contractors are reasonably free to account for such costs in whatever manner they choose. They must, however, use the same system at all times and on all contracts.

Based on this discussion, in analyzing delay costs, one must distinguish between head office overhead costs (those that support all projects) and project overhead costs (those that support a single project or group of projects). In performing such cost analysis, one also has to guard against the possibility of double dipping.

As a result, there are at least nine formulas that have been used, with varying degrees of success, in litigation in the United States and Canada according to Zack.

4.3.2 Formulae

1. Eichleay Formula

Kenny (1999:3) states that the Eichleay formula appears to be the most widely applied methodology for calculating lost overhead. The Eichleay formula is named after a 1960 federal Board of Contract Appeals case, Appeal of Eichleay Corp. (1961), which utilized a formula to estimate a daily rate for unabsorbed home office overhead damages that a contractor incurred as a result of project delays.

Zack (2001) states that the formula attempts to allocate head office overhead for the entire contract period first to the project and then recalculate it on a daily basis to determine the compensation owed.

According to Molloy (2001) where the loss of opportunity cannot be proven, and an actual cost approach is necessary the American Eichleay formula must be used.

2. Modified Eichleay Formula – Var. 1

Zack (2001) states that the formula attempts to allocate home office overhead for the original contract period first to the project and then on a daily basis to determine the compensation owed. But, it assumes that the head office overhead rate from the original contract period should hold the same even during the delayed period.

3. Modified Eichleay Formula – Var. 2

Zack (2001) states that similar to the first variation to Eichleay the formula attempts to allocate head office overhead for the original contract period first to the project and then on a daily basis to determine the compensation owed. It adds into the calculation the value of contract billings during the extended period in an attempt to compensate for overhead costs spread over a longer period of time.

4. Hudson Formula

Molloy (2001) states that Hudson's formula was first produced by Mr. Duncan Wallace (purportedly upon the advice of a quantity surveyor) and published in Hudson's Building and Engineering Contracts.

Zack (2001) states that the formula was used by the courts in the United Kingdom and later exported to Canada. It derives its daily head office overhead rate on the basis of the as-bid calculations and assumes that the bid rate should hold constant throughout the life of the project.

According to Molloy (2001) the formula is criticized by many principally because it adopts the head office overhead percentage from the contract as the factor for calculating the costs, and this may bear little or no relation to the actual head office costs of the contractor.

Winter (2001) supports Molloy's view and states that Hudson's formula, although once approved by the courts has long been discredited. This is because it is dependent on the adequacy or otherwise of the tender in question, and because the calculation is derived from a number which in itself contains an element of head office overhead and profit, so there is double counting.

5. Ernstrom Formula

Zack (2001) states that the formula rests on the theory that there is a direct relationship between overhead costs and labour costs that can be calculated and applied to a delay situation. That is, as labour costs grow so do the corresponding head office costs. Thus, by calculating the ratio and applying it to the amount of labour expenses incurred during a delay period, then the amount of damages due to the delay can also be calculated. As it is a ratio formula, a daily head office overhead cost is not developed but rather calculates a lump sum cost.

6. Manshul Formula

Zack (2001) states that this formula has also been referred to as the Direct Cost Allocation Method. When New York courts rejected Eichleay they were challenged to pose a substitute method of calculating overhead and created this formula. It does not arrive at a daily overhead rate. Rather, it uses the as-bid head office overhead rate times the cost of work performed during the delay period to determine the overhead used.

7. Carteret Formula

Zack (2001) states that the Carteret formula is a formula that comes out of the manufacturing sector but some have attempted to apply the formula to construction

delay cases. It assumes that there is a differential in overhead rates during a delay period and calculates this difference. The formula then multiplies this rate differential times the cost of work performed during the delay period. Since this is a cost based formula, like Manshul, it does not derive a daily rate. The problem with this approach is that if no rate differential can be shown, then no head office overhead is owed.

8. Allegheny Formula

Zack (2001) states that like the Carteret formula the Allegheny formula comes to the construction industry from the manufacturing sector. And, like Carteret and Manshul it is cost based, not time based. Thus, it does not derive a daily overhead rate but calculates overhead from the rate differential times the base bid cost. Again, if no rate differential can be demonstrated, then no head office overhead is owed even if owner-caused delay is present.

9. Emden Formula

Molloy (2001) in an attempt to improve upon the Hudson's formula an alternative was published in Emden's Building Contracts and Practice.

Zack (2001) states that the Emden formula is a creature of the Canadian Courts. Its approach is similar to Eichleay in that it attempts to allocate total company overhead to a project on first a proportionate basis and then a daily basis. It utilizes both overhead and profit costs as a part of the calculation and then multiplies the result times the amount of owner-caused delay incurred.

Molloy (2001) states that this formula has the advantage of using the contractor's actual head office/ profit percentage rather than the one contained in the contract and has received judicial support in a number of cases.

4.3.3 Case study facts

If these formulas are all fair, realistic methods of estimating damages then it should not matter which formula is used? The answer to the question lies in looking at the same case using all nine formulas.

ABC Construction, Inc. – Contract and Financial Data extracted from Zack (2001) and is listed as follows;

- Total Firm Revenue: Original Period $247,711,967
- Total Firm Revenue: Actual Period $381,095,333
- Total Labor Cost: Actual Period $137,194,333
- Original Contract Value $68,500,000
- Total Contract Value (before claim) $76,866,128
- Billings: Original Period $ 69,753,854
- Billings: Actual Period $ 76,866,128
- Billings: Delay Period $ 7,112,274
- Labor Costs: Delay Period $ 2,560,419
- Company Overhead: Original Period $ 16,265,000
- Company Overhead: Actual Period $ 28,918,417
- Total Overhead & Profit: Actual Period $ 37,156,795
- Planned Contract Duration 365 cd’s
- Actual Duration 655 cd’s
- Extended Duration 290 cd’s
- Owner-caused Delay 235 cd’s
- Planned Overhead & Profit % at Bid 7.0%
- Normal Head Office Overhead % 4.5%
- Actual Head Office Overhead % 5.3%

- Actual Head Office Overhead %: Delay Period 6.1%

4.3.4 Formulae application

The same facts above are applied to all the formulae below in order to establish a basis for adequately comparing the results obtained.

1. **Eichleay Formula**

Step 1

$$\frac{\text{Total Contract Invoicing}}{\text{Total Company's Contracts Invoicing}} \times \text{Total head office overhead} = \text{The Contract's Allocable overhead}$$

Step 2

$$\frac{\text{Allocable Overhead}}{\text{No of days of contract performance incl. delay days}} = \text{Daily allocable overhead rate}$$

Step 3

Daily Allocable overhead rate X Compensable delay days = Home office . . overhead damages

Step 1

$ 76 866
128
———— $ 28 918
X 417 = $ 5 832 787
$ 381 095 333

Step 2

$ 5 832
787
————
= $ 8 905/cd
655 cd's

Step 3

		235		
$ 8 905	**X**	**cd's**	**=**	**$ 2 092 675**

2. Modified Eichleay Formula – Variation 1

Step 1

Contract Billings				Overhead
———————	X	Total Overhead during contract	=	Allocable
Total Billings for Original Contract Period		period		to contract

Step 2

Allocable Overhead		
———————	=	Overhead Allocable to Contract/Day
Original Days of Contract Performance		

Step 3

Daily Overhead	X	Days of owner-caused delay	=	Home Office Overhead Owed

Step 1

$ 76 866
128
——————— **$ 16 265**
X 000 = $ 5047 095
$ 247 711
967

Step 2

$ 5 047 095
——————— **$ 13**
= 828/cd
365 cd's

Step 3

$ 13 828 X 235cd's = $ 3 249 580

3. Modified Eichleay Formula – Variation 2

Step 1

$$\frac{\text{Contract Billings}}{\text{Total Billings for Original Contract Period + Contract billings for extended period}} \times \text{Total Company Overhead During Original Contract Period} = \text{Allocable Overhead}$$

Step 2

$$\frac{\text{Allocable Overhead}}{\text{Original Days of Contract}} = \text{Overhead Allocable to Contract/Day}$$

Performance

Step 3

Daily Overhead	X	Days of owner-caused Delay	=	Head Office Overhead Owed

Step 1

$ 76 866 128

$ 254 824 241

$ 16 265 000 = $ 4 906

X 240

Step 2

$ 4 906 240

365 cd's

= $ 13 442/cd

Step 3

$ 13 442 X 235 cd's = $ 3158 870

4. Hudson Formula

Step 1

Planned Head office percentage	X	Original Contract Sum / Original Contract Period	=	
Allocable Overhead per day	X	Period of owner cause Delay	=	Head Office Overhead owed

Step 1

7% X $ 68 500 000

365 cd's = $ 13 137/cd

$ 13 137 X 235 cd's = $ 3 087 195

5. Ernstrom Formula

Step 1

Total Overhead for Contract Period (All Projects) / Total Labor Costs for Contract Period (All Projects) = General Labour / Overhead Ratio

Step 2

Labour / Overhead Ratio X Labour Cost During Delay = Allocable Overhead to Delay

Step 1

$$\frac{\$\ 28\ 918\ 417}{\$\ 137\ 194\ 333} = 21.08\%$$

Step 2

21.08% X $ 2 560 419 = $ 539 736

6. Manshul Formula

Step 1

Cost of Work Performed During Delay Period	X	Contract Cost % Cost + Markup%	=	Direct Cost

Step 2

Direct Cost Incurred During Delay Period	X	Head Office Overhead *	=	Head Office Overhead Owed

* Estimated or known head office overhead % portion of bid markup.

Step 1

$ 7 113 X 100% / 107% = $ 6 646

274 = 985

Step 2

$ 6 646 985 X 4.5% = $ 299 114

7. Carteret Formula

Step 1

Actual Overhead Rate During Delay Period	-	Normal Overhead Rate = Excess Overhead Rate

Step2

Excess Overhead Rate X Total Cost of Work During Delay Period	=	Head Office Overhead Owed

Step 1

6.1 % - 4.5% = 1.6%

Step 2

1.6% x $7,112,274 = $113,796

8. Allegheny Formula

Step 1

Actual Overhead Rate During Delay Period	-	Actual Overhead Rate During Entire Project Performance Period	=	Excess Overhead Rate

Step 2

Excess Overhead Rate x Contract Base Cost = Home Office Overhead

. Rate Owed

Step 1

6.1% - 5.3% = 0.8%

Step 2

0.8% x $68,500,000 = $548,000

9. Emden Formula

Total Overhead & Profit */ Total Company Turnover **

_____

X

100

Gross Contract Sum

_____

X Owner-cause = Head Office

Delay

Planned Contract Period Period Overhead Owed

* Total company overhead and profit during contract period

** Total company revenue for contract period

Step 1

$ 37 156 795 / $ 381 095

333 $ 68 500 000

_____ _____

X = 18 298 / cd

100 365 cd's

$ 18 298 x 235 cd's = $ 4 300 030

4.3.5 Formulae results

To determine whether these nine formulas deliver approximately the same results, the final outcome of each is shown below.

Formula	Daily Rate Head	/Office Overhead Recovery
1) Eichleay Formula	$ 8,905	$2,092,675
2) Modified Eichleay Formula – Var. 1	$13,828	$3,249,580
3) Modified Eichleay Formula – Var. 2	$13,442	$3,158,870
4) Hudson Formula	$13,137	$3,087,195
5) Ernstrom Formula	N/A	$ 539,736
6) Manshul Formula	N/A	$ 299,114
7) Carteret Formula	N/A	$ 113,796
8) Allegheny Formula	N/A	$ 548,000
9) Emden Formula	$18,298	$4,300,030

Based on the above analysis, it would appear that the owner should care which formula is used as the type of formula employed definitely has a substantial role to play in the processing of head office overhead claims. From a claimant point of view, the formula that yields the largest amount of compensation is obviously most desirable, however from an estimating point of view it is not necessarily the formula that provides the lowest result.

The fact is, the best formula is the one that is the most accurate and consistent and not necessarily the one that yields the largest compensation, the law works on the principle of what is most equitable and fair to both parties and this should be the principle adopted by all parties.

The formulae results conclude that there is a discrepancy in the type of formula employed by the courts when it comes to recovery of head office overheads. The conflicting statements presented below with regard to the choice of head office overhead recovery formula to be used supports the formulae results obtained by Zack (2001).

The type of formula to be used according to Flowerdew (2008) is that “you’ve basically got to look at what’s being claimed, what the parties obligations are, what you’re trying to prove, what information is available and then match the type of analysis to suit.”

Ness (2004) states that “the choice of formula for head office overheads is like a choice of beer: it often depends on where you are!” Referring to the different countries in which courts adopt different formulae for the recovery of head office overhead. “None of the formulae are fool-proof, and much will depend on the party that needs to be convinced of its accuracy. Of course, it may also be that the most accurate method of demonstrating head office overheads is simply to identify and prove the actual loss incurred by the contractor. It can be a complex matter.”

Ibbs and Nguyen (2007) goes onto say that ” results infer that the conventional daily overhead rate-based method can cause double payments because conventional recovery possibly covers parts of field overhead already paid from the original contract.”

Ibbs and Nguyen continue is stating that “the rate for compensable delay is either predetermined in contract documents or calculated in delay claims. Among other things, this practice has two major limitations. Specifically, it does not properly consider the timing of delays; and the degree of suspension, total or partial, in the calculation of the rate.”

Thomas and Napolitan (1993) support the limitations proposed by Ibbs and Nguyen and went on to say that “no research has been conducted on the ripple effect, although it has been acknowledged quite often by construction professionals.”

Some issues may arise when the proposed overhead recovery methods are employed. Segregation of project overheads and head office overheads and proper classification of project overhead costs may be problematic. This is because definition of these terms is sometimes different from one contractor to another. Parties may need to write contracts more carefully, specifying the different types of overhead, Holland and Hobson (1999).

Kahn (2008), “keeping good relations is a very good intention…many contractors identify risks and potential claims, only not to warn the client…bidding at a very low price…while holding a knife behind their back to cut the client, so I believe it is better to include such methods or formulas into the contract documents just to minimize the possibility of any dispute in the future.”

McGowan *et al* (1992) supports the statement made by Kahn above and states that if partnering or alliance is the policy for a project, the preparatory workshop which this requires provides a means of agreeing how to manage such claims.

Testro (2008) adds that “the discussion around Hudson or Emden is purely academic because although they are often included as a claim heading they are rarely awarded in a settlement. This is because it is so difficult to prove that the contractor has actually suffered any loss in recovered overheads. I have never yet got a loss of overheads paid in a dispute.” Testro further goes onto saying that” if your employer is offering payment on Hudson then bite his hand off,” the statement however proves contradictory to the results in the case study done by Zack (2001), whereby the

Hudson formula yielded the fourth largest compensation to the contractor of the nine formulae by quite a considerable margin.

The formulas cannot be used in isolation but a proper analysis and understanding of the company's costs and structure is vital in the formula's application and the type of formula to be employed.

However accurate the method proves to be, it would not be able to be used accurately on an industry wide basis for all claims.

What is generally presented as an accounting technique is obviously an estimating approach which yields wildly different results, even when applied to the same case.

4.4 Summary

The recovery of head office overheads resulting from employer caused delays in construction project proves to be a difficult process, for both the client and the contractor, even though in theory it should be relatively straight forward.

Head office overhead can be claimed either by the additional overheads required resulting from the delay, and secondly for unabsorbed overhead as a result of being prevented from obtaining new work by being tied up in completing the previous job.

There are various formulas that have been successfully adopted by the courts for the recovery of head office overheads, each using a different approaching in order to calculate the head office recovery amount.

The results of from the case study by Zack (2001) highlights the fact that the choice of formula plays a substantial role in the amount of compensation that can be awarded to the contractor as a result of the owner caused delays and that not one formula yields the same compensation on the same set of facts.

The type of formula to be used for recovery of head office overheads in claims is a point of controversy among the courts, project clients, claims experts and other built environment professional s.

4.5 Conclusion

Head office overhead is recoverable in certain delay situations and has been so for more than half a century. Head office overhead costs are hard to calculate. While numerous formulas have been put forth over the years, they give wildly varying results even when applied to the same fact setting. The research above clearly proves the lack of existence of a single accurate method to calculate head office overheads in construction delay claims.

4.6 Test of Hypothesis

Sub-problem 3

1.3.3 Does a single method for processing head office overhead claims in construction exist?

4.6.2 Hypothesis

1.4.3 A single method in law does exist relating specifically to construction cases. The hypothesis is incorrect.

4.6.3 Comments

Even when applied to the same set of facts in a delay situation, not one formula yields the same amount of compensation.

Chapter 5: Estimating principles concerning head office overheads

Sub-problem 4

1.3.4 Do the estimating principles in the process of budgeting, tendering and accounting of head office overhead overlap?

Hypothesis 4

1.4.4 The three elements fit into each other, therefore the estimating principles for head office overheads overlap.

Figure 18. Interlinking

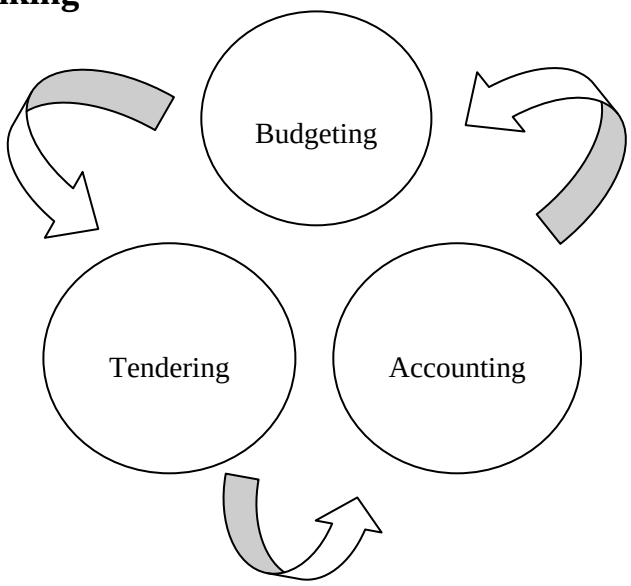
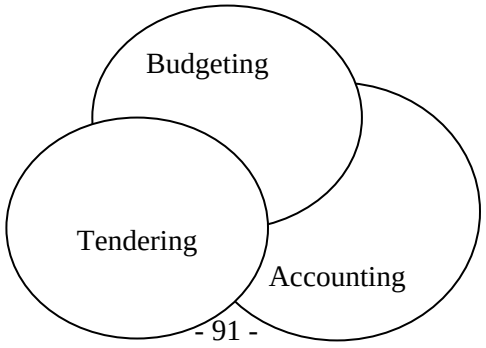


Figure 19. Overlapping



5.1 Introduction

Tah *et al* (1993), the primary objective of contracting organizations include survival, growth, and profitability within an increasing competitive industrial environment. These objectives can only be achieved by ensuring that an adequate workload is obtained. The approach generally adopted by contractors in obtaining construction work is to prepare and submit a bid or tender in accordance with estimating principles and guidelines. The tender price consists of both direct and indirect cost elements and making a distinction between the two is difficult and subjective. It is important to note that indirect costs consist of

1. Site overheads
2. Head Office overheads
3. Profit
4. Allowance for risks

When site overheads are excluded, the indirect costs are then often termed mark-up. Despite the difficulties generally associated with cost estimating and the time constraints on bid preparations, direct cost estimating methods are becoming similar and the reason for this is that materials are obtained from the same sources, labour rates are roughly the same, roughly everyone has access to the same labour supply, unit rates can be derived from market averages and so forth.

Thus, the variations in competitors' bids are mainly due to their selected mark-ups which reflect the bidding policies chosen to achieve their own objectives. Therefore it is perceived that efforts in improving tender prices should be directed towards improving the methods of determining indirect costs. Furthermore the competitive tendering process results in high tendering costs and hence high head office

overhead costs. Thus, any tool that increases the efficiency of the tendering process will be of benefit to the individual firm within the construction industry.

Indirect cost estimating involves management decisions that are highly subjective, involving qualitative information that is often vague and difficult to structure and quantify. It is for this reason that one of the key areas of importance is to know your company overhead costs well and to have accurate estimating techniques for them including up to date and accurate current overhead information and cost on hand when involved in the tendering process.

5.2 Cost estimating principles

According to Holt (2001:44) “if applying overhead to the job isn’t the most difficult step in the estimating process; it’s at least one of the most intimidating.”

The Bureau of Portfolio Management, Project Development and Building Program Section (2007) present the following with regard to estimating of projects, however one should note that the principles below also hold true for an estimator responsible for estimating head office overhead percentage.Care must be exercised in preparing every estimate. The estimator must thoroughly understand the scope of the project, the sophistication of the program, specific facility design requirements, how it will be constructed, its proximity to adjacent facilities, the time of construction, the retroactive applicability of building codes to an existing building, legislation requirements, site and utility conditions, etc.

Good estimates are the result of searching out program and design details, evaluating construction and site conditions, and accurately reflecting their cost impacts. The project budget includes all of the estimated costs associated with the client’s request, and quantitatively and qualitatively reflects program requirements. While the budget

estimate is normally prepared far in advance of the actual design and construction phases, its importance should not be underestimated.

Carr (1988) states that an estimate must be an accurate reflection of reality. An estimate should show only the level of detail that is relevant to decisions. Completeness requires that it include all items yet add nothing extra. Documentation must be in a form that can be understood, checked, verified, and corrected. Attention must be given to the distinction between direct and indirect costs and between variable and fixed costs. Contingency covers possible or unforeseen occurrences. Both the expected value of possible identified events and the expectation that events will occur that cannot be identified in advance.

Cost estimating shares some similarities with financial accounting. Both provide financial information that is needed in important decisions by a firm's management, as well as financial information to decisions outside the firm.

Both also require standard practices that can be repeated from project to project or period to period. Selecting estimating and accounting methods is as much an art as a science, to meet practical situations of reality.

Estimating literature's primary focus is on estimating formats, procedures, and processes for particular applications. It gives little attention to establishing a fundamental base or foundation to estimating decisions, so that the formats, procedures, and processes will provide estimates that are accurate and useful for decisions. This leaves a particular void in teaching estimating, whether in academia or in practice. Relevant construction professionals in estimating need to understand its fundamentals in the same manner that engineers in design need to understand design fundamentals.

A contributory cause for chaos, and probably one of the reasons for obstacles in estimating overheads, discussed by Dörner (1996), is the cognitive limitation of human decision-making. He characterizes complex situations as follows. First, the question is about complexity, the existence of many interrelated variables. Second, we have to deal with dynamic systems. It is not enough to manage the system a single moment, but over time. Third, the system is to some extent nontransparent; we cannot see all we want to see. Fourth, ignorance and mistaken hypotheses prevail. We usually do not know all relationships between the variables.

5.3 General estimating principles

5.3.1 Reality

Carr (1988) says that anyone can come up with a set of numbers. A challenge to the estimator is to produce an estimate that is an accurate reflection of reality. This is first a question of professional experience and judgment, and second, a matter of relevant historical data. The estimator then uses the best information available to estimate. This information may be cost or crew time data from past work. It may be calculations based on detailed analysis of the construction and business process. It may be the estimator's best guess of cost and time. Usually it is a combination of these.

It is particularly important that the estimator not select information simply for its convenience or its appearance of objectivity. All too often an estimator will use numbers that are handy or from a source that would seem to release the estimator from personal responsibility. They may be cost data from past projects or published in estimating guides. The use of such data without knowledge of its similarity to the work at hand produces an inaccurate estimate, because it is not based upon the realities of the current project and company.

Peterson (2005:191) states that estimating head office overhead requires management to project today what expenses are going to incur in the future. The projected costs should also be adjusted for inflation and changes in the market.

Roberts (2007), suggest tapping into as many information sources as possible in order to gain an informed view of upcoming market changes and hence reality. He suggests to visit with your banker, to visit with your insurance and bond agent, to purchase construction forecast data, to search the census bureaus' website for reports on economic projections and to call your local economic development councils.

5.3.2 Level of Detail

Carr (1988) states that estimating takes time, which is expensive, and one should spend it only on detail that is relevant to decisions. Relevancy is based on two criteria:

1. If a particular level of uncertainty is acceptable in making a decision, the level of detail that provides this level of uncertainty is acceptable; and

2. the effect of the level of detail on accuracy of the estimate should be reasonably uniform for all components of the estimate.

5.3.3 Completeness

Another challenge is to include all items that will be in the facility yet to add nothing extra.

The estimator must have the vision to see beyond the obvious components. In addition to the cost of performing construction, there are major costs of providing administrative and physical infrastructure for the construction process, such as permits, insurance, financing, security, transportation, accounting, purchasing, utilities, warehousing, and shops. Onto this can be added costs of delays and changes that will have occurred before the projects have been completed, Carr (1988).

5.3.4 Documentation

Carr (1988) states that an estimate is a permanent document that serves as a basis for business decisions. It must be in a form that can be understood, checked, verified, and corrected. This requires that the source of each number be readily apparent not only to the person who prepares the estimate but also to others who follow. Conditions that were assumed must be identified.

The estimate should be organized to be followed easily. It should be in a form that can be easily duplicated by photocopy or computer, and it should be subject to the same level of document control as other permanent documents. One should not be embarrassed to have it appear as evidence in settling disputes or for performance reviews.

It is usually not meant to be a finished financial statement as it might not be possible but it should hold true and meant for formal presentation. A well documented,

readable working document that can be easily updated to produce accurate realistic estimates of costs.

5.3.5 Direct and Indirect Costs

Carr (1988), a direct cost of an activity is physically traceable to the activity in an economic manner. A direct cost is one not counted if the activity is not performed. Indirect costs are business costs other than direct costs of construction activities; they are not physically traceable and are counted even if the activity is not performed.

Indirect costs consist of:

1. Large costs that would have occurred even if an activity had not been performed; and
2. small costs that would be direct except that assigning them to activities is not economical. The site engineer and tower crane are examples of the former.

There are two levels of overheads or indirect costs.

Project overhead is all costs that are economically traceable to a project but that would not have occurred had the project not been performed. The site engineer's salary and the tower-crane rental are indirect costs of the concrete process and other construction activities. However, if the project were not performed, there would be no supervision or crane rental costs. They are therefore project overhead costs, which are direct costs of the project.

The second level of overhead are head office overheads and consists of the costs of running the construction business that are not economically traceable to its projects. The estimating department is necessary in obtaining work, but only a few of the many projects estimated result in contracts. Its expenses are therefore not traceable to its projects, even those few it wins.

5.3.6 Variable and fixed costs

Carr (1988) states that costs can be classified by whether they change as the volume produced changes.

Volume or quantity of construction activity is measured in many ways. If a cost changes in proportion to a change in volume or quantity, it is variable. If a cost remains unchanged in total despite wide fluctuations in volume or quantity, it is fixed.

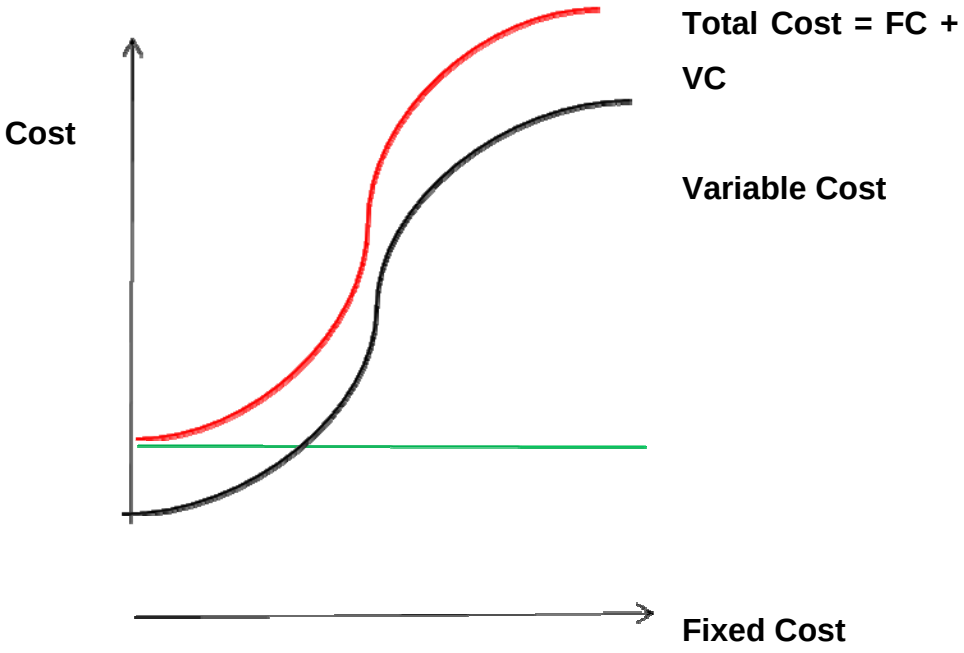
Many activities are a mixture of variable and fixed costs. Most of general and administrative costs, such as main office rent, insurance, taxes, and depreciation; salaries of main office personnel; and ownership costs of equipment; can be considered fixed for a given time period. They are often called period costs, because they occur or expire with time.

Though considered fixed over a given time period, they may change considerably from one period of time to another as the level of business changes or as equipment or real estate is bought or sold.

Project insurance and building permit are variable costs because they vary directly with cost of construction. Project supervision, security, and rental for crane and job-site offices are project period costs. They vary with length of project and are therefore considered variable costs.

The following graphically depicts the relation between fixed, variable and total costs, figure 21.

Figure 20. Graph depicting relationship between fixed, variable and total costs



Peterson (2005:194) introduces a third cost, namely mixed costs. These are costs that contain both a variable cost component and a fixed cost component. An example would be if a company paid an estimator a base salary (fixed) plus a bonus (variable) based on the volume of work won.

5.3.7 Contingency

According to Carr (1988) an estimate is a prediction, an approximation that provides information for decisions and is a surrogate or substitute for actual measurement that is not economical or possible. It is considered accurate if it is sufficiently close to actual performance that decisions based on the estimate are the same as decisions based on actual performance, were actual performance available.
Though the guiding concept of an estimator is accuracy, by its nature an estimate is uncertain.

An estimator must live with uncertainty, though it is not his friend. In fact an estimator must not only live with uncertainty, but he must estimate and control uncertainty, because the uncertainty contained in an estimate is as important information as the estimated value itself.
A contingency is a possible or unforeseen occurrence. In estimating, the word contingency is used for two types of estimates. The first is the expected value of a possible identified event occurring. The second type of contingency is the possible cost of unforeseen events. This second type is a true contingency and the one that needs close attention, because it is a margin for error.

The possibility of unanticipated events flies in the face of the knowledge that is the cornerstone of professional practice and control. The unanticipated may be of such a magnitude and consequence that it overwhelms ones carefully considered decisions and actions, and it controls the outcome. The worst of it, however, is not to know when one does not know, not to know when to expect error, and not to provide for the occurrence of expected error. An estimator is strongly interested in accuracy, which demands knowledge of what will occur.

Contingency represents an unknown, which seems to conflict with accurate estimating. However, when an estimator expects events to occur that cannot be identified in advance, accuracy demands they be represented in a cost estimate.

5.4 Case study of indirect costs in practice

The estimating of indirect costs in considered a sensitive and confidential issue by companies within the construction industry in a survey of indirect cost estimating in practices by Tah *et al* (1993) .

Those who were willing to participate in the survey indicated that they would only be speaking on general terms and would not be too specific in their responses.

The contractors were asked if they had a standard method of their own estimating site overheads or if they depended on information given in the bill of quantities. All the contractors indicated that they had their own checklist to assist the estimator in calculating site overheads as a reminder not to leave out any item that has to be included. Prior to calculating the site overheads, the total direct cost estimate has to be determined. This should indicate the level of overhead support required and the timing and duration of overhead requirements. The dependence on the bill of quantities is for the client contractual and specific requirements.

Two important factors stand out from the response of the contractors to the question,

1. that it is essential to first determine the total direct costs before the site overheads are calculated.

It shows that the direct costs are an important base for the calculating of the project overhead and for the estimators it is the departure point from which to establish the amount of resources required to complete the job. Therefore there is an existence of a ratio, one the definite existence of it in their mind i.e. between direct cost and site overheads. This ability is often termed as gut feel or experience, which is an extremely important skill. However this ability is of very little use when it has not put down into a tangible mathematical equation or graph depicting a relationship between

direct cost and site overhead which deprives it value as a source of tangible information for future use in estimating, reviewing of overhead performance and productivity. It seems that, gut feel in the construction industry basically means, that all the information is inside the head of the person and the existence of this information is not written down anywhere. One might find there is too much of it in the minds of the professionals in the construction industry and too little of that placed into useable friendly data for others to view and evaluate. There could be two possible reason for this is either the inability of the person being able to process the gut feel into tangible data for use by others and secondly they might be ignorant of the fact of the possibilities that could stem from providing their gut feel into useful data which the business could use successfully and even the industry.

2. to add to the fact that the direct cost is used as the basis from which to estimate the other cost involved in the project, it is though very surprising that many contractors base head office overhead percentage on turnover rather than on company's total project direct costs for the period.

In this way variable markup margins are not included together will the already accounted for head office overhead costs, profit and project risks.

According to Holt (2001:44), most contractors apply overhead to a job as a percentage of direct cost, and in many cases they don't base the percentage on anything. Sometimes a contractor will incorrectly derive the percentage from the income statement supplied by the accountant:
The danger however is typically that the percent ratios listed on the income statement is given as a relationship to turnover. This value should not be used as for when estimating it is very difficult to determine the markup one will achieve on a successful tender and therefore by not knowing the markup that one will achieve beforehand using the percentage based on direct cost would in principle be a better base to budget from. It can be that construction companies use turnover as the basis of deriving their overhead percentage which account for double dipping of markup an

essentially overheads.

The following hypothetical example will highlight the possible discrepancy.

Turnover	R 10 000 000
Direct Costs	R 7 000 000
Gross Profit	R 3 000 000
Head Office Overhead	R 1 000 000
Net profit before tax	R 2 000 000

If one works out the fixed head office overhead percentage by taking head office overhead cost for the period over turnover for the period the following percentage will calculated:

Head Office Overhead / Turnover = Fixed head office overhead percentage

R 1 000 000 / R 10 000 000 = 10%

However if one had to work out the fixed head office overhead percentage on direct costs for the period the following percentage will be obtained:

Head Office Overhead / Direct Costs = Fixed head office percentage

R 1 000 000 / R 7 000 000 = 14.29%

One can see that in the above hypothetical case that the variance on a very basic example such as the one used above yielded a 42.9% increase in head office

overhead percentage by taking head office overhead on direct costs instead of turnover.

It is not that using turnover as a base is in itself incorrect, rather that the difficulty involved in estimating requires data which is as accurate as possible and that provides consistency. By taking head office overhead on direct costs, one is obtaining a percentage that is based on actual direct output while at the same time eliminating the company's variable markup factor that is subject to markup fluctuations.

Peterson (2005:217) states that the profit and head office overhead markup is not the same as the gross profit margin. This can be illustrated by using the same example as before where:

Turnover	R 10 000 000
- Direct Costs	R 7 000 000
= Gross Profit	R 3 000 000

The gross profit margin is calculated as follows

Gross Profit Margin = R 3 000 000 / R 10 000 000 = 0.3 or 30%

If one had to markup construction costs by 30% to get the bid prices (revenue for the projects) on average, we would get the following:

Turnover = R 7 000 000 (1 + 0.3) = R 9 100 000

This is R 900 000 (R 10 000 000 – 9 100 000) less than the actual revenues from the projects for the period.

The gross profit margin and the profit and overhead markup are related by the following equation:

Profit & Overhead Markup = Gross Profit Margin/ (100 - Gross Profit Margin)

Profit & Overhead Markup = 30 / (100 – 30) = 42.86%

Applying a profit and overhead markup of 42.86% to the direct costs of the period of R 7 000 000 we get the following:

Turnover = R 7 000 000 (1 + 0.4286) = R 10 000 2000

The difference being due to the rounding of profit and overhead markup.

The survey by Tah *et al* (1993) reveals that all the contractors' estimator's use direct cost as the basis of estimating their project overheads, why don't company's not use total project direct costs as the basis of estimating their budgets and head office overhead margins?

The contractors in the survey by Tah *et al* (1993) were asked to explain how they determined the general or head office overheads amount and how it was distributed among projects. The general overheads amount is generally determined by expressing the budgeted annual overheads as a percentage of budgeted turnover and applied as a portion of the cost of the individual contracts. In all cases the percentage was determined by senior management. Two respondents indicated that their companies had a policy that the general overhead amount is a fixed percentage of the tender sum, as they had a good reputation for achieving their turnover target.

The fixed percentage is determined by senior management and is applied irrespective of each project.

Important in this finding is that the head office overhead percentage is a fixed value which is good as total head office cost is a tangible and calculable direct fixed cost, but in essence it is far from the fixed in that the fixed percentage does not end up as the fixed cost which to a large degree head office overheads are. In essence the amount recouped is totally dependent on the amount of work on hand and furthermore as it is usually done in the construction industry, the amount of work done in rands per month in the payment certificate. Therefore the principle of a fixed percentage in relation to variable turnover does not make entirely sense.

The research by *Tah et al* found that five contractors indicated that adjustments may be made to the calculated percentage based on observations made as to the sales achieved per year. They indicated that; if the company succeeds in achieving the anticipated turnover target then overheads are recovered; if it succeeds in increasing the turnover target then overheads are recovered; if it does not succeed in achieving the anticipated turnover target then overheads are under recovered.

What is encouraging in the above finding is that these companies are very aware of the general overhead fixed cost which needs be recovered in the period by applying a percentage to a fixed turnover target, (although as discussed earlier turnover is not the best base to use), which in principle the fixed to fixed principle in the estimating of the budget is correct, as the example of comparing apples to apples holds the same.

The value of the percentage may be adjusted up or down or left unchanged, depending on other factors including the anticipated sales volume, head office contribution, strength of the company, and market conditions. The following quotes were also extracted from some of the contractors, Tah *et al* (1993),

“If the company is competing satisfactorily then the overheads percentage may be left unchanged, or it may be reduced to win the contract, or it may be increased if failure to win the contract will not affect the company”

What is surprising is that it seems that many contractors are confused and overlap

1. Estimating general overhead principles,
2. Tendering markup principles (in which a general overhead percentage is included)
3. And the accounting of the general overhead at the end of the period.

This leads to the following subsection in order to explain the confusion that might exist for some contractors with regard to the effects on overheads.

5.4.1 Budgeting

Roberts (2007) suggests that before one dives into the how-to budget details, that it is important and a must to understand the connections between your budget, your business plan and your market. A company's budget is a financial representation of its business plan and its purpose is to take advantage of profitable opportunities in the market. Budgeting should not be attempted until your business plan has been developed. A construction company can only make as much money as the market will support and that its' business plan will deliver, hence one should budget accordingly.

According to Roberts, contractors often put the cart before the horse. They set sales, overhead and net income goals, put them into a budget and then try to craft a strategy to fulfill them. That sequence ignores the market. It's foolhardy to create the financial model and then craft a business plan that fits it when the business plan hasn't been tuned to the market.

Roberts suggest working in the following order:

1. Develop strategy,
2. Establish the budget,
3. Meet the budget
4. Then build a bulging bank account.

Roberts (2007) states that by creating annual budgets allows you to stay on top of your financial progress as your year unfolds. They arm you with the ability to reel in expenses before they kill your bottom line. They force you to think through your business' strategy and its resource allocations. Roberts emphasis the need of a budget which will assist overhead cost control.

According to Peterson (2005:191), the best sources of data for future costs are historical costs; however these costs must be adjusted to take into account the uniqueness of each year's financial objectives. For example if the company is going to expand its business next year, the general overhead budget needs to be adjusted to take into account the expansion of the business. The general overhead budget should be compatible with the company's goals or it is useless. Historical costs are easily obtained from past accounting reports.

To accurately project and control costs, the general overhead budget must be estimated line by line. By doing this managers are forced to look at each line item and estimate how their goals, the market conditions, and inflation affect each line item. This results in a more accurate budget, which makes tracking the budget more meaningful.

Peterson (2005:194) states that because variable and mixed costs vary with the volume of work and the fixed costs are for a specific range of work volume, the general overhead budget must be prepared for a specific volume of work. When

multiple years of data are available trend analysis may be used to project future costs. Trend analysis involves determining the annual inflation rate and an initial cost that represents the growth of costs over the years represented by the data using regression.

Peterson (2005:204) goes further on to state that the general overhead budget is a valuable tool in controlling the costs of overhead.

For budgeting purposes the organization should set a fixed turnover target preferably whereby the targeted turnover amount is based on a possible total direct cost output by the company's available resources. One must not underestimate the importance for basing the possible direct cost output on a reliable mathematical equation or ratio that stems from either industry average or even better the company's own set of data captured averages. A good starting point would be that apart from the direct costs, the labour costs are by far the most expensive overhead expense to the company, irrespective of the manner in which they are accounted for which is a common dispute among contractors in general (either project or head office overhead.)

A basic example for illustrating the principle would be to for example to determine the average annual turnover in terms of direct costs a certain job grade employee of the company can successfully achieve in a budgeting period (which is usually within a one year period.)

By working out the average work the particular job grade employee or average employee could turnover or oversee in that period, one could then multiply this average by the number of jobsite employees employed by the company and perhaps reach a figure which is realistic which could serve as the base target for the proposed company's budget.

Using a labour rate is by no means the only way and in no way does the above example fully provide for a realistic and accurate means of arriving at an accurate estimate. However seeing that labour costs are in most cases by far the largest

overhead expense to the company other than the projects' direct costs, it would constitute a good starting point for reaching a more accurate and efficient budget which is the basis of the business strategy. This has a ripple effect into the approaching business period and greatly affects the tendering process especially when determining the actual markup for the new project, which in fact, winning tenders, is a company's main reason for business. It could similarly be related to the importance of a sales company necessitating the need to make sales.

When a fixed turnover on direct costs for the period can reliably be estimated, the company should at the same time estimate as accurately as possible the periods head office overhead costs and then as a percentage determine a fixed value on the turnover on direct costs estimated. This should not be the flat rate that in reality should be charged to the sites for the period however it is a good departure point in the determining of the make-up of the contractor's markup by giving a reliable head office percentage contribution in theory.

5.4.2 Tendering

Peterson (2005:211-220) states that by dividing overhead into a fixed and variable portion, the percentage of construction revenues available for paying the fixed overhead cost and to provide a profit to investors may be determined.

The contribution margin is the amount of money that a project or projects contributes to the company to be used to pay for the fixed overhead and provide a profit for stakeholders. The contribution margin is what is left over from the revenues after paying the construction costs, which are considered variable costs, and the variable portion of the overhead.

When the contribution margin is obtained it is then divided by the revenues, which gives the percentage known as the contribution margin ratio. The contribution margin ratio is used to calculate the break-even volume of work or the volume of work may be used to calculate the break-even contribution margin ratio.

In essence the break-even volume of work may be calculated from the contribution margin ratio, the fixed overhead and required profit. Alternatively, the break-even contribution margin may be calculated from the volume of work, the fixed overhead and required profit.

These break-even analyses may be used to help managers of construction companies set target level for revenues, gross profit margin, general overhead costs, and profit from operations for the upcoming year. Peterson further states that when the volume of work changes, the general budget must be adjusted accordingly.

The first overlapping process can occur at this stage, which can similarly be described for instance in one which a Quantity Surveyor by compiling the valuation certificate on a project currently in progress, uses the rates built up in the elemental estimate for the project as opposed to the rates provided for in the full Bill of Quantities.

It is obvious that the QS is making a mistake by not using the actual rates tendered upon in the BOQ and approved by the client, but is using the rates from the elemental estimate which was not drawn up for the purpose the QS is using it for (i.e. the valuation certificate).

Similarly many contractors and quite frightening senior management use budget estimates for tendering purposes. The estimated fixed head office overhead percentage from the budget is used as overhead percentage in the markup whilst tendering. Referring back to our example of the QS, he should compare actual measurements with the BOQ rates to evaluate whether they are making a profit, i.e. actual versus allowable costs.

The same principle should apply where by senior management should not use the budget to determine its markup on the project but should base the markup on an evaluation of the actual general overhead costs of company to date in the period.

Peterson (2005:192) suggests the same by going on to say that many companies will benefit by breaking down the annual general overhead budget into monthly overhead budgets. This provides monthly milestones that the manager can measure performance against, rather than waiting till the end of the year.

Amongst other things the senior management should on a monthly basis establish whether the company is securing sufficient turnover per month to recoup actual general overhead expenditure. When the actual general overhead costs exceed the budgeted allowance for the month the variance will be negative. However Martin (2008), suggest that favorable and unfavorable variances do not always represent good and bad.

Martin (2008) indicates the reasons why actual and applied (budgeted) overhead costs can differ. The reasons actual and applied overhead costs are different are frequently separated into two categories. Overhead variances occur when:

1. the actual quantities used and actual prices paid for the various indirect resources are different from the prices and quantities estimated or budgeted for the overhead rate calculation and

2. the actual level of activity is different from the activity level used to calculate the overhead rates.

The first category of differences causes variances for both variable and fixed overhead costs. The second category is only related to fixed costs.

According to Martin (2008) the reason why fixed costs are not constant and the reasons why fixed overhead spending variances can occur and thirdly the reasons for

how fixed costs can differ from the budget if they are fixed, is simply that one should remember that, fixed does not mean constant. Fixed simply means that the costs do not vary as a result of changes in the activity. However, actual fixed overhead costs can be different from budgeted fixed overhead costs for some other reason. For example, a salaried factory employee may resign, die, or be promoted to an administrative position. Any cost can change in the short run. It is the reason for why costs change that separates variable costs from fixed costs.

One cannot simply change the overhead percentage in order to win tenders; this is another mistake some contractors make. The head office overhead percentage from the budget is an estimate on either the break-even volume using a previous or historical contribution margin ratio or by a new contribution margin ratio on an anticipated volume of work for the period.

It is very important to note that the basis of the budgeted fixed head office overhead percentage was calculated in the budgeting stage on uncertain future information. What contractors need to be aware of is that, they cannot in the tendering stage base their current head office overhead percentage on the base used in calculating the budgeted percentages. The reason for this is that, while in the tendering stage, the contractor is in a position to base his overhead percentage on actual figures to date for the period as opposed to anticipated figures used in the budgeting stage.

It is very concerning that some contractors are of the opinion that by decreasing a fixed general overhead percentage whilst tendering for a job are in fact just doing that, decreasing the project's and company's variable and fixed overhead costs. It must be said that one could decrease the variable site overhead costs, for example using less foreman and tower cranes on the job. However the contractor must note that many site overheads are in fact company overheads and their cost continue to run irrespective of the business activity of the company. For example if the crane above is owned by the construction company and there is an out flow of cash associated with the asset, the contractor would effectively decrease the site overhead

on the job tendered on, but would not be decreasing the companies fixed overheads as the crane's fixed overhead cost would then be shifted to another job, and that jobs profit would be used to pay for the asset irrespective of whether the crane is actually used on that job.

Therefore the contractor should, whilst in the tendering stage make use of general overhead percentages that are based upon actual costs to date using a contribution margin ratio which is based on these current figures and not a past or budgeted ratios and percentages.

Burrows (2008) supports this idea by stating that the only way to compute overhead with precision is by using current budget data. She also states that in order to create a new percentage for overheads when tendering is to both track and calculate their overhead expenses exactly. According to Burrows, many contractors fall far short of this regard and use an arbitrary number in their calculations, others rely on gut instinct and others still employ this is how we've always done things around here formula with predictably unreliable results.

Roberts (2007) suggests using a monthly income statement which should show the following in order to make improved decisions based on the latest available data:

- Budget value for the month
- Actual value for the month
- Budget value year-to-date
- Actual value year-to-date
- Actual vs. budget variance for month
- Actual vs. budget variance year-to-date
- Projected year-end based on current trend.

Secondly contractors do occasionally decide in difficult times in the market to tender on a project using a markup that is less than their general overhead percentage or required recovery. This is not unknown to the industry, however it is vital that in times like these, that the contractor uses a general overhead percentage that is based on a required break-even fixed overhead cost, to ensure that they know exactly by how much they are tendering above or below the required fixed overhead percentage.

Burrows (2008), states that knowing your companies break-even point is essential for accurate pricing and bidding. It establishes the minimum amount that must be charged to a project to be profitable. Equally important to her is that it specifies a date when a company can for instance, for competitive reasons, reduce its bids within a set percentage range and still make profit.

The problem is that many contractors do not use a break even analysis to determine this point, the only basis they have is a fixed general overhead percentage developed in the budget at the beginning of the period, whereby they knowingly or unknowingly fail realize that this overhead percentage consists of fixed and variable costs, which is higher than the required fixed cost only.

One must understand that only when the month is over and the work is done, is the QS able to measure the actual rate and compare it with the allowable rate. It is only in this position that with certainty he can evaluate and determine the actual profit (or loss) of the work done. Referring back to the example of the QS, it is very difficult while the bricklayer is building the brick wall to work out whether he is, with certainty, going to make a profit or loss. However the QS can with certain data capturing of the activity (i.e. building of the brick wall) predict what the outcome could possibly be when the bricklayer does finish constructing the wall. It is with this example that many contractors and their senior managers while for example are half way through their financial year, confuse themselves by saying it is too difficult to figure out exactly how

much head office overhead has been charged to the site, what contribution the projects turnover is making to the fixed head office overhead percentage tendered on and finally to the total current actual head office overhead cost accrued by the company.

The fact is that it is not too difficult but rather impossible to with certainty provide an answer for the end result of the period, as in the same way the QS could not say with certainty what the end result of the brick wall would be (i.e. in terms of time, cost and quality) but he could by taking the current factors into account make a reliable prediction of the end. In the same way the senior managers cannot when busy with tendering within the financial period work out with certainty the applicable head office overhead percentage which should be included in making up of the new project's markup but can only make a prediction (by using current information on actual cost thus far and by continuing this trend up and to the end of the period using a prediction technique.)

One must note that the above is not saying that one cannot calculate the actual general overhead percentage correctly. When the calculation is done at a specific point in time, based on actual figures to date, the contribution margin ratio for example can provide an exact percentage to apply to the new job. However the point being made is that when time progresses past the point in time when the calculation was done, the calculated overhead percentage would then be subjected to change and hence lose its' certainty.

The term markup should be used when busy with tendering as it does not make sense to say for instance that we are tendering on lower overheads or our profit is less than our overheads. The reason for this, as described above is that at that stage:

1. One cannot accurately determine the actual head office overhead percentage for the year

2. One cannot by decreasing the head office overhead percentage on the project in reality decrease the costs of general overheads, head office overhead costs are largely fixed costs and cannot be subjected to subjective decision making.
3. One can however tender on a markup that is below the budgeted or estimated overhead percentage which is technically more correct.
4. Profit and risk are definitely cases for subjective decision making, however when deciding on the markup, whereby the profit percentage tendered on within the markup is lower than the budgeted profit percentage, the difference between the budgeted and tendered profit percentage should be calculated in theory so that at the end of the period management would be able to see how much more or how much less profit did they make with regard to their budgeted figures. It will allow each project to be analyzed and record kept of why the results were different to budgeted figures. For example, management could analyze the reasons why actual profit percentages for markups during the period were lower than the estimated profit percentages in the budget at the beginning of the period, and by how much were they different.

It is not always too difficult to calculate these costs exactly as is the common perception amongst contractors but rather being a case of being impossible for most parts of the financial period with only one period allowing one to fully calculate the actual head office overhead percentage chargeable for the period and that is when the financial statements have been drawn up for the period. It should be quite easy to note that one can only be certain of the fixed general overhead percentage once the period has passed, therefore this suggests that whenever a contractor would be tendering on a new job, the overhead percentage charged to the new job will with certainty always be an estimate and never certain, at least in the construction industry.

5.4.3 Accounting

Carr (1988) presents that although accounting and estimating have strong similarities, they are basically different. Accounting is fundamentally historical, describing financial position and activity over the past, depending primarily upon objective evidence. There is some application of GAAP to estimating; however, some accounting principles have no application to construction estimating and others conflict directly with good estimating practice.

Just as the QS can only at the end of month or project, for certain, calculate the profit or loss, so does the same principle apply in the evaluating of overheads. One might ask why is it so important to calculate the exact head office overhead figures.

1. It is used for historical data in order to increase the accuracy of future estimates.

Contracts are mostly won on markup, it is for this vital reason that one has before you, the most accurate figures for estimating general overhead percentages to be used in the markup for competitive tenders.

A sound business strategy relies upon the estimation of the most efficient markup possible in order to maximize the chances of the contractor winning tenders.

2. To review the performance of individual contracts

It is not always possible to accurately determine the performance of a specific project in terms of its profit (or loss) made. The reason for this is that it is quite common for some projects to carry more than its fare share of general overheads than specifically attributed to it; therefore it makes it very difficult to accurately determine the project's profit as a result of this skew relationship. It might also be that the project is carrying

less of an overhead burden than what it should, hence increasing its' so called profit and presenting management a distorted view of the projects financial performance.

When the actual general overhead has been determined for the period, the management would then be able to on for example use an average general overhead cost in cents per rand of direct cost, be able to judge each projects' performance in terms of its profit. It is important to note that this method might not reflect reality one hundred percent as it is still only an average applied to each project, whereby in reality it could have been different.

It must also be said that this method in no way will increase or reduce the previous period's net income; the money that is in the bank is the money that is in the bank.

3. To determine the profit for the period

Once the total general overhead costs have been determined, the net profit before tax can be calculated for the company.

Another point to be made is that when a fixed head office overhead target is determined and a fixed percentage is derived in the business strategy by the budgeting process, one must remember that as discussed previously that one can during the course of the financial year not accurately determine the actual head office overhead at that specific point in time within the financial period, as is similar in the case with the QS and the wall being constructed by the bricklayer. What basically happens is that when you decide to change the head office overhead percentage during the financial year especially when tendering, you are in no way with certainty knowing what you are doing. In theory it is impossible, and to overcome this dilemma is to ensure that when your company determines its fixed percentage of head office overhead for the period (before the period actually commences) that this fixed percentage does not deviate, or deviates only slightly, from the actual fixed percentage for the period.

The process can be followed as described below.

1. Determine the total markup amount for the period received.
2. Subtract actual head office overhead costs for the period from total markup received.
3. Create ratio between total head office overheads for the period in relation to the total direct costs for all projects for the period.

Step 3 will allow one then to have the actual head office overhead fixed percentage as an average for the company and then one can compare this to the fixed head office overhead percentage used for the tendering process during the previous financial year and evaluate the accuracy of one's budgeting department.

Furthermore the actual head office overhead fixed percentage can then be applied individually to each of the company's individual projects from the previous financial period from which one can exactly determine the net profit resulting from each job. This is because by knowing the markup tendered upon and the actual head office overhead contribution for the year, one can then in theory determine how much profit, in percentage terms, the contract should be making and secondly by comparing the actual profit on the job made to the tendered upon profit percentage one is able to with some respect quite accurately and with a large degree of fairness evaluate the performance of each project as well as providing the company with accurate figures to create an efficient business strategy for the following period.

An additional spin off by using this method is that some contracts managers feel that they are burdened with additional head office overheads which for him do not create a true reflection on the profit that he is making on his current project. Secondly as a means for a fair evaluation of a projects performance and ultimately the contracts manager's performance this method allows a senior member of management to objectively view each projects performance by having before him each projects actual

contribution to the head office overhead costs at the end of the period and can then subtract this value from the tendered upon markup percentage and with this value compare it to the actual profit made by the contract's manager respectively. Therefore a fair and objective performance evaluation can take place. According to the study by Tah *et al* (1993), the contractors indicated that the major factors that influenced the value of the general overheads amount included

1. the anticipated and actual sales volume
2. the head office contribution
3. amount of work bid for
4. strength of the company
5. market-conditions
6. competition
7. type of work
8. size of the contract
9. resource content
10. duration
11. location of the contract

When asked about how the contractors determine and distribute profits all the contractors have a budgeted turnover target to achieve. This includes work on hand, future work and anticipated tenders to be won. Based on these factors senior management decides on the amount of money or a percentage of the contract cost to be added as profit. Furthermore the contractors indicated that the major factors that affected profit included

1. type of work
2. complexity of work
3. experience
4. market conditions
5. contract duration

6. competition

The study by Tah *et al* (1993) further found that the markup included risk and all contractors classified risk into two categories; quantifiable and unquantifiable risks. When the risks are quantifiable the estimator includes the appropriate costing for the risk in the estimate. The cost depends on what is exposed to risk. It is calculated as the product of the cost of the element exposed to risk and assessed probability of the risk occurring. Where the risk is unquantifiable the amount added is bases on management's perception of the situation. The addition for risk is made in one or more of the following ways

1. A percentage in the profit margin
2. A separate percentage on all costs
3. A lump sum in the preliminary bill
4. A percentage in one bill if the risk is in that bill alone

The contractors were also asked if they used any statistical analysis to determine risks. All the contractors indicated that they do not perform any form of statistical analysis to determine risk. They indicated that each risk was unique and should be evaluated on its own, based on different methods of construction and the financial damage it will incur in the event of its occurrence. The major risk factors included

1. Type of contract
2. Location
3. Conditions of contract
4. Funding
5. Cash flow
6. Experience
7. Resources
8. Client

The percentage that is added is based on the subjective judgment, often described as the hunch of senior management according to Tah *et al* (1993). The subjective decision making process involved in these tasks are characterized by qualitative data and knowledge that is often vague and difficult to structure and quantify.

5.5 Summary

Indirect costs for a contractor comprise of site overheads, head office overheads, profit and risk, by removing site overheads the contractor is left with what is commonly known as markup which in itself is a difficult and subjective process in order to derive its' value.

Overheads, with specific reference to head office overheads moves through three stages namely budgeting, tendering and accounting.

Budgeting is the process whereby the head office overhead percentage is estimated using historical data and which is in accordance with the construction company's business plan and hence its' financial goals.

Tendering is the stage at which the estimated head office overhead percentage is modified by comparing actual head office costs to date with the estimated head office overhead percentage for markup purposes to be used in the bidding and tendering process for winning jobs.

Accounting is the stage of measuring total head office overhead expenditure for the period and whereby the head office overhead percentage is replaced by an actual lump sum figure, from which individual contract performance can flow as well as evaluating performance of the contractor's estimating abilities.

5.6 Conclusion

The processes of budgeting, tendering and accounting of head office overheads in construction companies do not only occur during distinct different periods in time but are also distinctly different in their individual functions. However the goals of each function do link up with the main goals of the business strategy and hence interlinked in this way.

5.7 Testing of the hypothesis

Sub-problem 4

1.3.4 Do the estimating principles in the process of budgeting, tendering and accounting of head office overhead overlap?

5.7.2 Hypothesis

1.4.4 The three elements fit into each other, therefore the estimating principles for head office overheads overlap. The hypothesis was incorrect.

5.7.3 Comments

The study clearly indicated that the estimating principles in the budgeting, tendering and accounting process do not overlap and are distinctly different, however they are importantly interlinked and the successful implementation of estimating principles for each preceding phase is essential for the succeeding phase.

Chapter 6 Summary, conclusions and recommendations

6.1 Background

Overheads and more specifically head office overheads are viewed by contractors as a silent harvester of retained earnings and constitute a starting point for cost reduction. The construction environment for contractors is characterized by intense competition, declining profit margins and shrinking market share. The only way contractors can stay competitive is to control cost while maintaining quality products as presented by Assaf (2000).

Most literature on overheads and its associated practices are primarily focused and based on the controlling and cutting costs thereof. While according to Peterson (2005:183) the average construction company uses over two thirds of the gross profit from its jobs to pay for general overhead. This proves that when dealing with overhead cost in construction, that there is more to the management thereof than purely the associated financial cost of having it.

The main problem is that overheads are not just a cost.

6.2 Summary

Overhead practice in construction follows three interlinking stages namely the;

1. Estimating of an overhead budget

Determining the appropriate overhead expenses to be incurred by the business in supporting the works for the following year

The budget is an essential part of the company's business plan which is a financial representation of its' strategy.

2. Tendering

Dependence on the formation of the most appropriate bidding strategy obtained from an accurate overhead budget that translates into a successful markup strategy in order to win tenders.

3. The accounting thereof

Which is important for preparing the following year's budget, the processing of head office overhead recovery claims resulting from owner caused delays on projects, evaluating performance of contracts directors in terms of overhead management and lastly for determining profit or loss of individual projects and for the construction company as a whole.

6.3 Conclusion

The research found that overheads are more than just harvesters of retained earnings and form part of a much broader scope of the organization. For a contractor, the activities that generate revenue and provide the company with profits arise from its construction projects. Other than the projects' direct costs, the projects are supported by overheads namely in the form of site overheads and head office overheads. Overheads need to be resources in order to support the activities of the projects; if these overheads are only costs then they will be unable to support the projects and activities, which in theory would require that the direct costs would solely be

responsible for executing the activities of the projects in order to generate revenue and provide the contractor with profit.

Technically overheads have to be more than just a cost. The research further found that overheads are apart from their associated costs important strategically, play a vital role in the winning of tenders, help achieve the primary goal of the business which is to make profit, assist in creating a performance management culture and assist in owner caused delay claims.

Most construction companies require in the running of their business support in the form of resources which are overheads, these resources however come at a cost to the company, but are the result of the company investing in these resources. The main idea behind an investment is found in the sacrificing of a certain present value for the possible return of an increased future value. Overheads are investment decisions made by the construction company and hence the value of investing in them out weighs the associated costs of having them. This therefore concludes that overheads must be more than just a cost for the construction company; otherwise the contractor will understandably have no reason for investing in any.

6.4 Suggestions for further research

The current shortage of usable overhead information and data in the construction industry for contractors make it difficult to improve overhead practice and awareness. Further research can aim to solve these problems and assist in creating standardized overhead practice amongst contractors.

6.5 Bibliography

Abbasi, A., Bower, D. & Merna, A. 1996. *Dispute resolution in construction and infrastructure projects.* Hong Kong: Asia Law & Practice.

Abbott, C., Henrich, G. & Koskela, L. 2006. *Drivers for innovation in production management*. 14th IGLC Conference, Chile.

Allen, B., Couto, V., McNeese, C. & Pigorini, P., 2004. *The new CFO agenda: Global G&A survey insights and implications*. Boozallen. [Online] Available from <www.boozallen.com/media/file/138173.pdf> (Accessed on 10 July 2008).

Battersby, E. 2004. *Controlling costs to control profits*. [Online] Available from <http://www.signindustry.com/management/articles/2004-02-02-ControllingCosts-MB.php3> (Accessed on 18 October 2008).

Baye, M.R., 2006. *Managerial Economics and Business Strategy, Graph depicting relationship between fixed, variable and total costs.* McGraw-Hill.

Bennett, J. 2008. *International Construction Project Management. Revised and summarized general theory*. Oxford: Butterworth Heinemann.

Betts, M., and Wood-Harper, T. 1994. *"Reeingineering construction: A new management research agenda".* London: E&FN.

Bourne, M., Franco, M. and Wilkes, J. 2003. *Corporate performance management,* Measuring Business Excellence.

Bower, D. 1999. *A systematic approach to the evaluation of indirect costs of contract variation.* Manchester: University of Manchester Institute of Science and Technology.

Burrows, K. 2008. *Profitable contractor: Control overhead*. Construction today. [Online] Available from <http://www.construction-today.com/content/view/874/31/> (Accessed 29 September 2008).

Carr, R I. 1988. *Cost estimating principles*. ASCE. [Online] Available from <www.ricarr.com/Papers/Estimating Principles/Principles.pdf> (Accessed 4 July 2008).

Champagne, B.2008. *Managing those illusive overheads*. Performance management weekly Volume 55 .UMS Group. [Online] Available from <http://www.umsgroup.com/ums_static/pmweekly/55_managing_overheads.asp> (Accessed 15 October 2008).

Chinowsky, P S., & Goodman, R E. and 1997. Assocaite Memebers. Journal of Management in Engineering. November/December 1997 pg 57.

Cokins, G. 2003. *Strategic performance management*. President & CEO. [Online] Available from <http://www.sas.com/solutions/spm/cokins.pdf> (Accessed 15 October 2008).

Covell, M W., & Lee, J. 2008. *Getting of the roller coaster.* Strategy and leadership. Volume 36(2). [Online] Available from <www.adaptiveoverhead.com> (Accessed on 7 July 2008).

Doost, R K. 2001. *Budgets and budgeting*. The Gale Group. [Online] Available from <http://www.answers.com/topic/budgets-and-budgeting> (Accessed 15 October 2008).

Ellis Jones, K.1998. *The Strategy Reader.* Milton Keynes MK7 6AA, UK: The Open University.

Entrepeneur, 2008. *Elements if a business plan, design and development plan*. The Small Business Encyclopedia. [Online] Available from <www.entrepeneur.com> (Accessed 15 October 2008).

Fitts, J., & Aziza, B. 2008. *Hold 'em accountable, Improving the financial performance of an organization happens when a culture of accountability is instilled in its work force.*

Flowerdew, A. 2008. *RE: Hudson, Emden formula and other analysis aids*. Planning Planet. [Online] Available from <http://www.planningplanet.com/forum/forum_post.asp?fid=1&Cat=7&Top=48310> (Accessed 15 July 2008).

Foster,G. 2006. *A manager's guide to what the numbers really mean.* Phoenix: Mastercard. [Online] Available from <http://www.mastercard.com/us/business/en/smallbiz/resources/industry/finance-accounting/articles/1127OverheadStrategies.html> (Accessed on 18 October 2008).

Hayes, R W., Perry, J G., Thompson, P A., & Willmer, G. 1986. *Risk Management in Engineering Construction.* London: Thomas Telford.

Holland, N L., & Hobson, D. 1999. *Indirect cost categorization and allocation by construction contractors*. Architect Engineering.

Holt, M. 2001. *Applying Overhead and determining break-even cost*. EC&M. [Online] Available from <http://www.cedia.net/education/courseware/ESD003_Reg05_2.pdf> (Accessed 10 July 2008).

Homsey, H H H. 2008. *Franchising world, When all else fails go make a sales call*. IFA. [Online] Available from <http://www.franchise.org/Franchise-Industry-News-Detail.aspx?id=38998.>(Accessed on 16 October 2008).

Horner, R M W., Jones, D. McGowan, H., & Thompson, P A. 1992. *The allocation and evaluation of risks in construction contracts*, Occasional Paper No. 52. Chartered Institute of Building, Ascot.

Ibbs, W., & Nguyen, L D. 2007. *Alternative for quantifying field-overhead damages*. Journal of Construction Engineering and Management, Volume 133(10). ASCE.

Kenny, C F. 1999. Newsletter Volume X, Issue 2. New Jersey: Peckar and Abramson.

Khan, F. 2008. *RE: Hudson, Emden formula and other analysis aids*. Planning Planet. [Online] Available from <http://www.planningplanet.com/forum/forum_post.asp?fid=1&Cat=7&Top=48310> (Accessed 15 July 2008).

Knight, J. 2006. *A manager's guide to knowing what the numbers really mean.* Utah: Mastercard. [Online] Available from <http://www.mastercard.com/us/business/en/smallbiz/resources/industry/finance-accounting/articles/1127OverheadStrategies.html> (Accessed on 18 October 2008).

March, J G. & Simon, H A. 1958. *Organizations*. New York: Wiley.

Marshall, H E. 1988. *Techniques for Treating Uncertainty and Risk in the Economic Evaluation of Building Investments*. Washington DC: US Department of Commerce.

Martin, J R. 2008. *Management Accounting, Concepts, techniques & controversial issues*. [Online] Available from <www.maaw.info.htm> (Accessed 8 July 2008).

Molloy, J B. 2001. *A formula for success*. Hong Kong: HKIS.

Ness, S. 2007. *RE: Head Office overheads in the event of prolonga*. Planning Planet. [Online] Available from <http://www.planningplanet.com/forum/forum_ post.asp?fid=1&Cat=7&Top=48310> (Accessed 15 July 2008).

Newman, M. 2007. *To maximize profits, avoid "overhead creep".* Hagedorn Publication. [Online] Available from <http://findarticles.com/p/articles/mi _m3601/is_1_54/ai_ n21118548/pg_2?tag=artBody;col1> (Accessed on 18 October 2008).

Peterson S J. 2005. *Construction Accounting and Financial Management,* New Jersey: R.R. Donnelley & Sons Company.

Piven, P. 2003. *Basic financial principles excerpted and adapted from architect's essentials of starting a design firm*. The American Institute of Architect's Starting a Firm, FAIA.

Porter, M. 1998. *Competitive advantage, Creating and sustaining superior performance.* New York: The Free Press. [Online] Available from <http://www.quickmba.com/strategy/competitive-advantage/> (Accessed on 18 October 2008).

Remiasz, T. 2006. *Overhead costs might seem fixed, but it's important to remember that they are always in your control*. Mastercard. [Online] Available from <http://www.mastercard.com/us/business/en/smallbiz/resources/industry/finance-accounting/articles/1127OverheadStrategies.html> (accessed on 18 October 2008).

Resnick, H S. 2008. *Management training program*. [Online] Available from <http://www.worksystems.com/services/performance_management.html> (Accessed 15 October 2008).

Robbins, S. 2007. *The joys of overhead, Why overhead isn't necessarily bad.* Stever Robbins Inc.

Roberts, R. 2007. *How to establish and stay on budget, Construction business owner.* [Online] Available from <http://www.constructionbusinessowner.com/topics/accounting-and-finance/how-to-establish-and-stay-on-budget_4.html> (Accessed on 15 October 2008).

Sherwin-Williams, 2008. *Don't underestimate overhead costs.* Sherwin-Williams Company. [Online] Available from <http://www.sherwin-williams.com/pro/services/painting_contractors/pro_info/overhead/index.jsp> (Accessed on18 October 2008).

Shinn, C. 2002. *When times are good, it's easy for builders to become big spenders*, Lee Evans Group. [Online] Available from <http://www.highbeam.com/doc/1G1-90655146.html> (Accessed on 18 October 2008).

State of Wisconsin, 2007. *Capital budget cost estimating guidelines 2007-2009, Bureau of Portfolio Management Project Development and Building Program Section*. Madison.

Stiffler, M. 2006. *Driving performance*. Work Performance Solutions. MediaTec Publishing Inc.

Tah, J H M., Thorpe, A., & McCaffer, R. 1993. *A survey of indirect cost estimating in practice.* School of Construction Economics and Management, South Bank University, London.

Tangram Technology, 1998. *Overhead costs management, An easy guide who's minding the store- it's not my problem.* UK:Tangram Technology. [Online] Available from <http://www.tangram.co.uk/GI-InfoSheet03-OverheadCostManagement.html> (Accessed on 16 October 2008).

Testro, M. 2008. *RE: Hudson, Emden formula and other analysis aids*. Planning Planet. [Online] Available from <http://www.planningplanet.com/forum /forum_post.asp?fid=1&Cat=7&Top=48310> (Accessed 15 July 2008).

Thomas, H R., & Napolitan, C. 1993. *Anatomy of a construction change in proceedings.* CIB-W65 Conference, Trinidad.

Winter, J. 2001. *Head office and overhead.* Bakernet. [Online] Available from <www.bakernet.com/NR/rdonlyres/.../28901/HeadOfficeOverheadandProfit2.pdf> (Accessed 7 July 2008).

Yantis, M.1996. *Cost control: Know thy overhead*. [Online] Available from <http://www.inc.com/magazine/19960501/1677.html> (Accessed on 18 October 2008).

Zack, J G. 2001. *Calculation and recovery of home office overhead*. AACE international transactions, Morgantown, W.Va.

www.cognos.com (Accessed 15 October 2008.)

www.wikipedia.com (Accessed on 18 October 2008).

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